DACW-33-85-D-0011 Delivery Order 0018 Roughans Point, Revere, ME

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ATLANTIC TESTING LABORATORIES, LIMITED



Sustaining Member—N.Y.S. Society of Professional Engineers

Box 29 Canton, N.Y. 13617 (315) 386-4578

> Box 356 Cicero, N.Y. 13039 (315) 699-5281

April 7, 1987

U.S. Army Corps of Engineers New England Division 424 Trapelo Road Waltham, MA 02254-9149

Attn: Chief, Engineering Division

NEDED

Re: Subsurface Investigation Roughans Point, Revere, MA Contract DACW-33-85-D-0011 Delivery Order No. 0018 ATL Report No. CD020-1-3-87

Gentlemen:

In accordance with Delivery Order No. 0018, dated 25 November 1986, attached is one final copy of our Engineering Report for the subsurface investigation performed at Roughans Point in Revere, MA.

By copy of this letter, we are also transmitting two copies of this report to the Chief of the Geotechnical Engineering Branch.

If you have any questions or comments, please do not hesitate to contact our office.

Respectfully submitted,

Spence F. Thew, P.E./L.S.

President

SFT/TAB/jm

encs.

2 cc: Chief, Geotechnical Engineering Branch, NEDED-GF

SUBSURFACE INVESTIGATION ROUGHANS POINT REVERE, MA

CONTRACT DACW 33-85-D-0011 CONTRACTING OFFICER: Edward D. Hammond, LTC, CE 28 June 1985

DELIVERY ORDER NO. 0018 25 NOVEMBER 1986

PREPARED FOR: U.S. Army Corps of Engineers

New England Division 424 Trapelo Road

Waltham, MA 02254-9149

Theresa A. Beddoe PREPARED BY:

Atlantic Testing Laboratories, Limited

P.O. Box 29

Canton, NY 13617

ATL Report No. CD020-1-3-87

March 6, 1987

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SCOPE OF INVESTIGATION

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6.5	Standby time/on site moves	80	HR	75 .0 0	6,000.00
9.	BULLDOZER EXCAVATION AND GRADING				
9.1	Bulldozer (150 H.P.) with operator	40	HR	70.00	2,800.00
10.	FLOATING PLANT ATTENDANT VESSEL, CREW AND EQUIPMENT				
10.2	16 ft. boat	6	DAY	60.00	360.00
10.7	Mobilization and Demobilization for 320 square foot float	1	JOB	950.00	950.00
12.	AUGER BORINGS - UNCASED				
12.3	Hollow Stem Auger, 4" inside diameter	39 0	LF	22.00	8,580.00

STANDARD FORM 36 JULY 1986 GENERAL SERVICES ADMINISTRATION FED PROC. REG. (41 CFR) 1-18 (0) Exception Approved, March. 1977

CONTINUATION SHEET

Delivery Order No. 0018 to DACW33-85-D-0011

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13.	DRIVE SAMPLE BORING (SPT) WITHOUT CASING				
13.1	0-30 ft. depth	12	EA	13.00	\$ 156.00
16.	THIN WALLED TUBE SAMPLING				
16.1	3-inch diameter x 30 inch Tube	6	EA	110.00	660.00
18.	DRIVING AND PULLING CASING				
18.2	HX, and 6-inch size	96	LF	28.00	2,688.00
22.	DIAMOND CORE DRILLING VERTICAL				
22.3	NWX size and/or NWM	10	LF	45.00	450.00
32.	Crane and Operator	6	DAY	896.00	5,376.00
	You are authorized to commence work on this Delivery Order on December 8, 1986.	,			
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ATTACHMENT 1 -

CONTRACT NO. DACW33-85-D-0011

DELIVERY ORDER NO. 0018

EXPLORATION INSTRUCTIONS

PROJECT: Roughans Point Coastal Flood Protection Study

SITE: Roughans Point, Revere, MA

PURPOSE: Determine foundation conditions for proposed revetments,

sluice gate and earth berm.

1. SCOPE OF INVESTIGATIONS

a. General.

Locate and execute twemty-three (23) drive sample borings by means of tape measuring the given distances as shown on Attachment No. 2.

b. Explorations.

- (1) All explorations shall be located by the geotechnical inspector tape measuring from features shown on the Exploration Plan (Attachment No. 2). Elevations shall be determined by Contractor-provided survey crew.
- (2) The twenty-three (23) drive sample borings shall be to the following depths and subject to the provisions below: FD-A, 15'; FD-B, 25'; FD-C, 15'; FD-D, 25'; FD-E, 15'; FD-F, 25'; FD-G, 15'; FD-H, 25'; FD-I, 15'; FD-J, 25'; FD-K, 15'; FD-L, 25'; FD-H, 15'; FD-N, 15'; FD-O, 50'; FD-P, 20'; FD-Q, 50'; FD-R, 20'; FD-S, 30'; FD-T, 20'; FD-U, 30'; FD-V, 15'; and FD-W, 25'. If organic materials (peat, organic silt, etc.) are still encountered at the above-specified depths, the Contractor shall notify the Government at whose discretion the borings shall be continued to fully penetrate the organic materials or to other depths as directed. If borings FD-O and FD-Q do not fully penetrate cohesive materials (silty clays, sandy clays, etc), the Contractor shall notify the Government at whose discretion the borings shall be continued to fully penetrate the cohesive materials or to other depths as directed. Payment for approved additional boring shall be made at established unit prices. If refusal is encountered in the top 15 feet of a borehole, the boring shall be continued using vertical diamond coring drilling until the hole can be completed using drive sampling methods or the required depth is reached. Boreholes shall be terminated prior to the required depth if refusal is encountered below 15 feet or below the organic materials.
- (3) Standard Penetration Tests shall be taken at 5-foot intervals in the boreholes in accordance with Part II, para. 13 of the specifications. Undisturbed samples shall be taken between standard penetration tests at 10-foot intervals below the organic materials in boreholes FD-O and FD-Q, in accordance with Part II, para. 16 of the specifications.

- c. <u>Inspection</u>. A geotechnical inspector shall act as field inspector while performing the borings. The inspector shall provide telephone reports to Mr. Ronald DeFilippo, Corps of Engineers at tel. (617) 647-8175 at least once each working day. The alternate point of contact is Mr. Paul Schimelfenyg, Corps of Engineers tel. (617) 647-8394.
- d. All samples shall be delivered to the Corps of Engineers Headquarters in Waltham, Massachusetts. Sample delivery shall be coordinated with the Director, NED Materials and Water Quality Laboratory at tel. 617-647-8367/8392.

2. SITE CONDITIONS.

The proposed exploration program is along the Atlantic Ocean coast at Roughans Point, Revere, Massachusetts. Twenty-one of the proposed explorations are relatively flat beach areas some of which are subjected to tidal action. One proposed exploration is on a traffic island. One proposed exploration is in a marsh area. Subsurface information is shown on Attachment No. 3.

3. RIGHTS-OF-ENTRY.

Rights-of-entry will be arranged by the Contractor in cooperation with the City of Revere, Mr. Frank String; at tel. (617) 284-3600, ext. 111, and the Metropolitan District Commission, Mr. Henry Higgins at tel. (617) 727-7220.

4. COORDINATION.

The Contractor shall provide five days notice prior to start up of exploration activity to Mr. Ronald DeFilippo, Corps of Engineers at tel. (617) 647-8175 and Mr. Frank String; City of Revere, Massachusetts at tel. (617) 284-3600, ext. 111. The alternate point of contact is Mr. Paul Schimelfenyg, Corps of Engineers at tel. (617) 647-8394.

5. EXPLORATION NUMBERS.

The boring locations designated FD-A through FD-W shown in Attachment No. 2 shall be redesignated FD-1 through FD-23 in order of their completion.

6. COMPLETION SCHEDULE

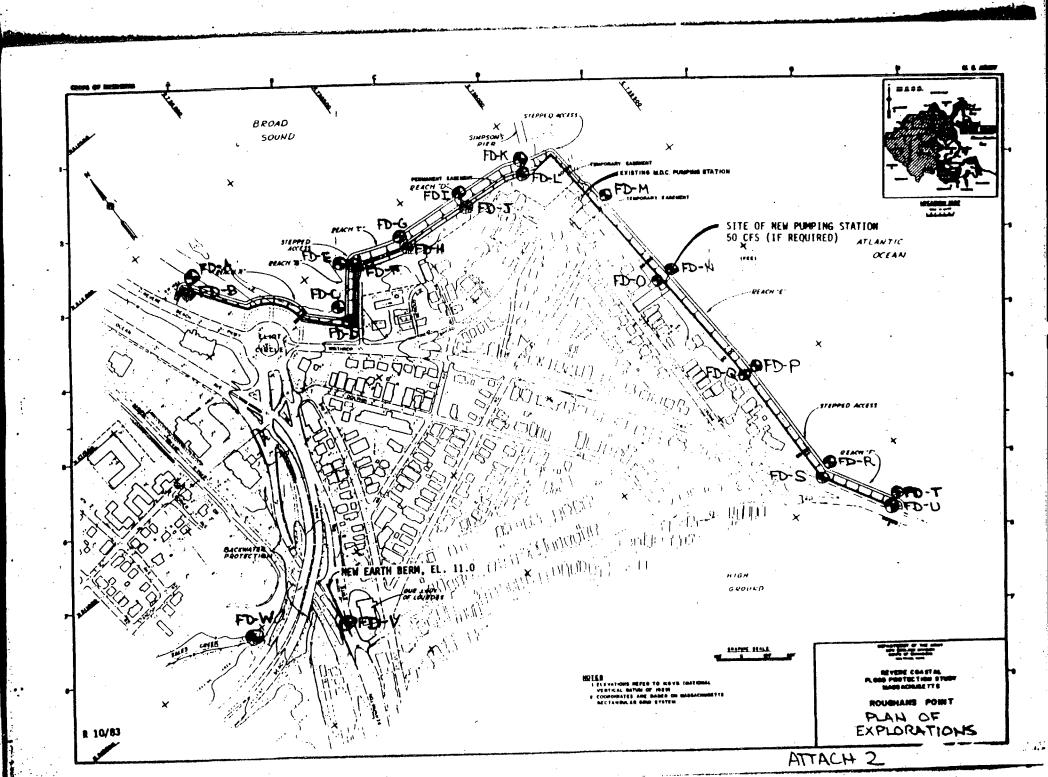
Services under this delivery order shall start within fifteen days after the receipt of the delivery order. Duration of the drilling effort is estimated to be eighteen calendar days. The geotechnical report shall be submitted in draft form for review, to the Government, postmarked no later than seven calendar days after completion of the field work.

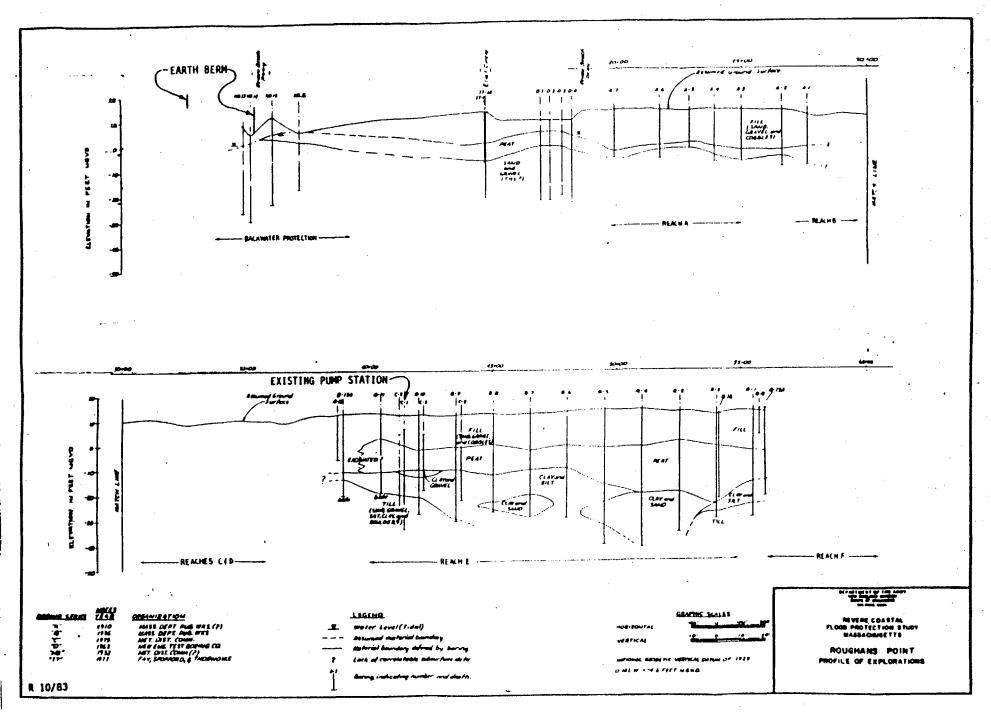
Government review will take approximately ten calendar days from receipt of draft report. The final geotechnical report shall be submitted postmarked no later than seven calendar days after receipt of draft report with Government comments.

7. QUALITY CONTROL

You will be held responsible for the quality of the maps submitted and for all damages caused the Government as a result of your negligence in the performance of any services furnished under the contract.

Although submissions required by your contract are technically reviewed by the Government, it is emphasized that your work must be prosecuted using proper internal controls and review procedures. The letter of transmittal for each submission which you make shall include a certification that the submission has been subjected to your own review and coordination procedures to ensure (a) completeness for each discipline commensurate with the level effort required for that submission, (b) elimination of conflicts, errors, and omissions, and (c) the overall professional and technical accuracy of the submission. Documents which are signficantly deficient in any of these areas will be returned to you for correction and/or upgrading prior to our completing our review.





b. Project Site

The site of the subsurface explorations is along the Atlantic Ocean coastline at Roughans Point, Revere, MA. Twenty—one of the explorations are located on relatively flat beach areas, most of which are subjected to tidal action. One exploration is on a traffic island, and one is in a marsh area. A general Project Map and Site Location Map are included in Section 8.

c. Purpose

The subsurface investigations were to determine foundation conditions for proposed revetments, sluice gate and earth berm.

d. Scope of Work

Inspection and exploration instructions, which were provided by the Army Corps of Engineers, New England Division, are included in Section 3a.

Work under this delivery order consisted of locating twenty-three drive sample borings by means of tape measuring the given distances shown on the Exploration Plan, Attachment No. 2 of the delivery order (Section 3a). Two borings (FD-W, FD87-14, and FD-V, FD86-1) were relocated due to site access problems; the remainder of the borings were completed within a five foot radius of the requested locations. A boring location plan is in Section 8c. The ground elevation was determined by an Atlantic Testing Laboratories' survey crew. Elevations were established from an existing benchmark located at an angle point in the existing seawall, near station 56+00. The explorations were performed in accordance with paragraphs 12, 13, 16, 18 and 22 of the contracted "Specifications for Services and Equipment Necessary for Conducting Geotechnical Exploratory Work, Various Locations in New England and New York". Specific instructions and changes during the course of the work were given verbally in telephone conversations with a Corps of Engineers representative and are documented in Section 5.

QUALITY CONTROL

a. General Certification Statement

I hereby certify that the records, equipment and procedures mentioned below were used to perform the subsurface exploration described herein. I also certify that the work was performed in a professional manner and meets the requirements set forth in the delivery order. This report has been subject to my review and is both complete and technically accurate.

CERTIFIED 6 March 1987

Spencer F. Thew, P.E./L.S.

b. Records Taken

Pertinent drilling procedures, sampling operations, and soil classifications were noted on the following forms provided for use by the Corps of Engineers:

NED 121 - Field Log of Test Boring, Summary

NED 58 and 58a - Field Log of Test Boring

NED 74 - Field Log of Undisturbed Sampling in Drill Holes

NED 59 - Subsurface Water Observations and Boring Location Sketch

A complete series of logs for each of the borings is included in Section 8d.

Disturbed sample containers were labeled using ENG Form 1742. Undisturbed sample tubes were labeled using ENG Form 1743. A summary of daily activities and a telephone log are Tables I and II of Section 5, respectively. A chain of custody log is in Section 6. The Safety Meeting Reports, NED Form 251, including exposure time for Atlantic Testing Laboratories' personnel, are located in Section 7.

c. Equipment Used

All equipment and supplies were provided by Atlantic Testing Laboratories, Limited, with the exception of a Komatsu Track Backhoe and Caterpiller D-9, provided by a subcontractor.

1. Survey Equipment

- Wild Heerburg T-1A 20-second, erect-image theodolite
- Wild Heerburg NAK-2 automatic level
- 25' fiberglass telescoping stadia rod
- fluorescent paint, flagging, nails
- 2" x 4" x 4' long stakes

2. Drilling Equipment

- skid-mounted CME45 drill rig on trailer
- track-mounted CME45 drill rig
- 1-3/8" I.D. by 2 ft long split spoon samplers
- 140 pound hammer
- 3" I.D. by 30" long thin-walled tube samplers
- AW sized rods used to advance the samplers
- 3-1/4" I.D. hollow stem augers
- 4" I.D. casing with spin shoes
- -3-7/8" and 3-1/8" roller bits
- 3" O.D. by 5 ft diamond bit core barrel
- NW sized rods used to advance the roller bit and core barrel

d. Procedures

1. Survey Procedures

On January 5 and 6, 1987, a two man field crew of Atlantic Testing Laboratories staked out soil borings FD-A through FD-W (FD86-1, FD87-1 through FD87-22). Boring locations were established by taping distances given on Attachment No. 2 of the delivery order. The locations were taped from the landward edge of the existing wall or by extending the line of the existing wall. Borings FD-V (FD86-1) and FD-W (FD87-14) were located

as indicated on the exploration plan, but moved slightly due to access problems. FD-V was requested in the center of a four lane highway, and was moved to the adjoining traffic island to minimize safety hazards. FD-W was requested in the center of Sales Creek next to a concrete abutment; it was moved to the other side of the abutment and correspondingly deepened to compensate for the elevation difference.

Elevations were established on January 6, 1987, on the above borings from an existing benchmark located at an angle point in the existing seawall, near stations 56+00 and boring FD-S (FD87-20). The reference benchmark is a chiselled square in the top of the seawall. The reference elevation is 17.31 ft mean sea level. A closed level loop was run on the soil borings proceding from the benchmark north and west along the coast to FD-A (FD87-5), south to Winthrop Parkway and southeast along the Winthrop Parkway to the benchmark. The elevations of borings FD-V (FD86-1) and FD-W (FD87-14) were determined from a temporary benchmark established on the first loop.

These elevations are accurate only for the day they were established. Subsequent tides and a series of violent storms altered the beach profile to one more typical of the winter (i.e. a stony, steep face). However, the elevations should indicate actual boring elevations to within one half foot. The borings most probably affected are the eight borings along Reach E and Reach F, FD-N through FD-U (FD87-15 through FD87-22).

2. Drilling Procedures

Borings FD-O (FD87-15), FD-Q (FD87-21), FD-S (FD87-20) and FD-U (FD87-22) were located in the large boulder rip rap directly at the base of the seawall. These were cleared by a subcontractor with a Komatsu Track Backhoe. After the borings were completed, the subcontractor returned to the site to replace the boulders and return the rip rap to its original condition. This work has been inspected and is complete. Boring FD-W (FD87-14) was cleared of small trees by a subcontracted Caterpiller D-9, which also cleared a road down to the boring location. This work had been cleared with a representative of the property owner, Mr. Robert Cerretani.

Twenty of the borings were advanced using 3-1/4" I.D. hollow stem augers to 2 ft above specified depth. The final 2 ft of the borings were completed by sampling. The augers were cleaned out, when necessary, with a water hose prior to sampling. Boring FD-U (FD87-22) was advanced to 11.0 ft using hollow stem augers and completed using a 3-1/8" roller bit in the open hole. Borings FD-O (FD87-15) and FD-Q (FD87-21) were advanced to 30.0 ft and 20.0 ft respectively by spinning 4" casing and washing out with a 3-7/8" roller bit. A 3-1/4" I.D. hollow stem auger was used to start FD-O (FD87-15). These two borings were continued to 2 ft short of completion by advancing the 3-7/8" roller bit in the open hole. The final two ft of the borings were completed by sampling.

All the borings were completed at the specified depths, except for FD-O (FD87-15) and FD-Q (FD87-21) which were deeper than requested and FD-T (FD87-19) and FD-U (FD87-22) which were shallower than requested. These changes were authorized by the Corps of Engineers (see Section 5). FD-W (FD87-14) was deepened to terminate at the requested elevation in order to accomodate its new location, which was requested by Atlantic Testing Laboratories.

Standard penetration testing sampling was accomplished using a 1-3/8" I.D. by 2 ft long split spoon sampler advanced by a 140 pound hammer dropping in free fall from a height of 30", in accordance with ASTM D-1586. The sampling interval was 5 ft. Refusal was defined as 100 blows in less than 18 inches or bouncing refusal. The soil samples were placed in 16 oz glass jars with hermetically sealed lids. The samples were not classified in the field because of freezing or near freezing temperatures wind/chill factor. The samples were brought to room temperature and classified in accordance with ASTM D-2488. Jars were labeled using ENG Form 1742, provided by the Corps of Engineers.

Thin-walled tube sampling was performed using a 3" I.D. by 30" long tube advanced into undisturbed soils using a steady downpressure provided by the rig, in accordance with ASTM D-1587. The sampler was allowed to set for 10 minutes, given one full twist and extracted. The base of the tube was capped, taped and sealed in beeswax. Disturbed material was removed from the top of the tube and used for sample classification in accordance with ASTM D-2488. The top of the sample was capped in the tube with beeswax. The remainder of the tube was filled with beach sand; the tube was capped, taped and sealed with beeswax. The tubes were labeled with ENG Form 1743 and placed in an undisturbed sample shipping box, provided by the Corps of Engineers.

Chain of Custody Logs were maintained documenting custody of the samples between Atlantic Testing Laboratories and the Corps of Engineers. All samples were delivered to the USACE NED Materials and Water Quality Laboratory.

Fourteen of the twenty-three borings were completed in the first four days of drilling effort. The completion of the remainder of the borings was hampered by several factors:

- 1. A property owner, Ms. Dorothy Scholwin, denied ATL access across her beachfront property which extended to mean low water. Access was granted January 12, 1987 after she received a written request for access (included in Section 9b).
- 2. The winter storm season began December 31, 1986 and battered the coastline with an unusually great number of storms. Two drilling days were generally lost to each storm, the day of the storm itself and the day after, when the storm surge from the storm center in the Atlantic Ocean remained high.
- 3. The remainder of the borings were along Reach E and Reach F and were affected by the tides. Access to these borings was rendered brief by the tides; at most a five hour work shift was possible between high tides. This five hour shift was further shortened when low tide did not correspond to the brief daylight hours. The height of low tide also had an effect on the number of hours worked; when low tide was high, access was not possible. When the tides permitted two work periods during the day, one in the early morning and one in the early evening, lights were used. However, because of the residential neighborhood, work was not possible before 6:30 AM or after 11:00 PM.

These factors resulted in an unusually long completion period for the job. Section 5 contains a Summary of Activities, which includes daily tide and storm information.

SUMMARY OF ACTIVITIES
AND
TRIEPHONE LOG

TABLE I

Summary of Activities

NOTE: On-site hours reflect inspector's on-site time.

Tide information gives time of high or low tide/height of the tide in feet referenced to mean low water for Boston Harbor (from 1987 Tide Tables for East Coast of North and South America, U.S. Dept. of Commerce, NOAA, National Ocean Service).

Weather information is provided to reflect the influence of storms on drilling activity.

<u>Date</u> <u>Activity</u>

December 29 Monday:

- Mobilize inspector TA Beddoe, two drillers, skidmounted CME 45 and raft to site.

December 30 Tuesday: on-site 7:00-5:00

- Weather: cool (30's), overcast, windy.

- Locate Roughans Point, investigate site for access.
- Pat Sullivan, Manager, ATL Subsurface Exploration Division, on-site for site reconnaissance.
- Stake out borings V, W, B, C.
- Repair flat tire on skid rig's trailer.
- Unload drilling material at Roughans Point.
- Investigate site re: necessity of crane to lower rig over wall. All that will necessary is a track vehicle to move the rig while the tide is out.
- Conduct safety meeting.

December 31 Wednesday: on-site 7:00 - 10:30

- Weather: overcast, cool (30's), windy.
- Complete boring FD86-1 (V).

January 5 Monday: on-site 12:00 - 4:30

- Weather: clear, upper 30's, breezy.
- Tide: 0908/-0.1, 1523/9.9
- Travel to site.
- Survey crew stake out borings FD-A, B, C and E. Begin taping distances along seawall for remainder of borings.
- Meet Ms. Dorothy Scholwin, 156 Broad Sound, 289-5529 who denied us access to the last six borings. ATL cannot cross her beachfront with our equipment.
- Immediately thereafter we were denied access along the seawall when a property owner wired the fence shut. He allowed us to cut the wires provided we wire the fence shut when finished. His big concern was his liability if a child fell off the seawall onto the rocks below.
- Mobilize track-mounted CME45 to site.

January 6 Tuesday: on-site 7:00 - 4:00

- Weather: clear, warm (upper 30's), slightly breezy.
- Tides: 1006/0.3, 1622/9.2
- Stake out remainder of borings.
- Run level survey of boring locations to obtain elevations.
- Complete borings FD87-1 through FD87-6 (FD-A, B, C, D, E, F).
- Hold safety meeting.
- Standby time 1 hour for call to Corps (track rig).

January 7

Wednesday: on-site 7:00 - 5:00

- Weather: partly cloudy, breezy, 40's
- Tides: 0457/9.4, 1107/0.5, 1721/8.6.
- Delay in morning due to high water. Investigate the remainder of the boring locations with respect to access problems.
- Possible subcontractor on site to investigate boring locations FD-O, Q, S, U, W re: clearing access to them.
- Complete FD87 7, 8, 9 (FD-G, H, I). FD87-10 (J) abandonned at 20' due to rising tide. Augers could not be left in the hole because of flowing sands.

January 8

Thursday: on-site 7:00 - 5:00

- Weather: clear, 30's, windy, raw.
- Tides: 0551/9.3, 1212/0.6, 1825/8.2.
- Complete borings FD87-10, 11, 12, 13 (FD J, K, L, M).
- Ron DeFilippo and Paul Schimelfenyg on site. Showed them Ms. Scholwin's property and problematic boring locations, spoke about access problems.
- Possible subcontractor did not contact ATL.
- Note large amounts of standby time will be used because of the tides, especially next week.

January 9

Friday: on-site 7:00 - 3:00

- Weather: clear, 30's breezy.
- Tides: 0647/9.2, 1312/0.6, 1926/7.9.
- Telecons to Corps, Canton, City of Revere Assesser's Office, Landmark Engineering & Surveying, Inc., Suffolk Registry, Revere lawyer Edward J. Leach, Ms. Dorothy Scholwin regarding blocked access to last six borings.
- A letter requesting an easement was sent via Federal Express to Ms. Dorothy Scholwin from ATL corporate headquarters, Canton, NY. This letter is included in Section 9b.
- No drilling accomplished as air transportation for the weekend had been cancelled.
- Retained services of Caruso Construction Company, Charlie Connor, Principal, to provide track backhoe and D-9 to clear access to borings FD-O, Q, S, U, W.
- Obtain clearance from Mr. Robert Cerretani to complete boring W, including cutting trees to build a road for access.
- Standby time 5 hours for the tide (skid and track rigs).

- January 12 Monday: on-site 4:00 5:30
 - Weather: overcast, 30's, windy.
 - Tides: 0916/9.4, 1546/0.2, 2158/8.0.
 - Travel to site.
 - Subcontractor cleared access to FD-0.
 - Dorothy Scholwin gave verbal permission to cross her property after having received the letter written by ATL.
 - Will try to complete FD-N, P, R, T, W. After these seaward borings have been completed, the rip rap can be cleared for access to the remaining borings along the seawall.
- January 13 Tuesday: on-site 6:30 7:00
 - Weather: clear, 30's, windy, raw.
 - Tides: 1001/9.5, 1626/0.1, 2240/8.1.
 - Hold safety meeting.
 - Unable to accomplish any drilling because of tides.
 Little work will be accomplished this week because of them.
 - Move rigs to pull-out in order to move on FD-W tomorrow.
 - Subcontractor cleared access to FD-W.
 - Standby time 8 hours for the tide (skid and track rigs).
- January 14 Wednesday: on-site 7:00 1:00
 - Weather: clear, breezy, upper 30's.
 - Tides: 1040/9.6, 1705/0.0.
 - Complete FD86-14 (FD-W).
 - Track-mounted CME45 demobilized to Winnepesauke.
 - Return travel to Canton.
 - Standby time 8 hours for the tide (skid rig)
- January 19 Monday
 - Weather: storm in progress.
 - Travel to site.
 - Track-mounted CME45 mobilized from Winnepesauke to Revere. Hauler requires maintenance.
 - Standby time 4 hours due to tide/weather (skid rig)
- January 20 Tuesday: on-site 7:00 5:30
 - Weather: clear, 20's, breezy.
 - Tides: 0831/0.6, 1437/9.1.
 - Sea high (about 1 ft higher than normal) because of storm now off the coast. The 4 to 8 inches of snow received last night did not significantly impede our progress.
 - Advance FD87-15 (FD-0) to 12 ft using augers. Pulled augers when the tide forced us off the site. We will spin casing tomorrow.
 - Could not access FD-N due to high water.
 - Conduct safety meeting.
 - Standby time 4 hours due to tide (skid and track rigs)

January 21 Wednesday: on-site 7:30 - 7:30

- Weather: high 30's, overcast, light breeze.
- Tides: 0919/0.6, 1524/8.8.
- Unable to access FD-0 with skid rig. Access to other borings with the skid rig not possible because of high seas.
- Complete FD87-16 (FD-N) using track-mounted rig.
- Skid-mounted CME45 demobilized to Winnepesauke.
- Note heavy breakers due to approaching storm.

January 22 Thursday: on-site 7:00 - 12:00

- Weather: overcast, windy, 20's.
- Tides: 1009/0.5, 1618/8.5.
- Complete FD87-17 (FD-R).
- Ron DeFilippo on-site
 - Delivered seven boxes of samples to him.
 - Authorized boring termination when it became apparent that the silts and clays were interbedded with organics. The last sample did terminate in sandy silt.
 - Emphasized the importance of hard hats.
 - Requested frequent checking of the 30" hammer drop to ensure it is correct.
- Storm brought stong east winds at the end of the boring; rising tide forced us off-site.
- Left Boston to return to Canton at 1:30. We determined that the storm would render work Friday impossible.

January 26 Monday:

- Weather: frigid, windy, heavy snow with clearing in the afternoon.
- Travel to site.
- Note vandalism to rig: spark plug wires had been pulled and gauges broken. No serious damage had been done.

January 27 Tuesday: on-site 8:00 - 1:00

- Weather: clear, windy, heavy seas.
- Tides: 0837/10.7, 1510/-1.2.
- Conduct safety meeting.
- Attempt to access borings, but high seas with breakers topping the walls and localized flooding kept the boring locations inaccessible.
- Work on repairing the rig.
- Find a marine forecast that indicated we might be able to access the borings tomorrow.
- Standby time 4.5 hours due to tide (track rig).

January 28 Wednesday: on-site 9:00 -:5:30

- Weather: clear, 20's, light breeze
- Tides: 0935/11.1, 1607/-1.6.
- Rig repair completed.
- Complete FD87-18 (FD-P)
- Drill 11.75' of FD87-19 (FD-T) before tide forced us to vacate. Entire depth of boring was in dense, sandy till.
- Lynn Mazzarella, 149 Endicott Avenue, Revere, stopped by to request that when the rip rap is placed by the public stairs, a path be left open so that elderly people can access the beach easily. Do not block the stairs with a huge boulder, as had been done before.
- Standby time 2.5 hours due to tide (track rig).

January 29 Thursday: on-site 9:00 - 5:30 Weather: clear, light breeze.

- Tides: 1033/11.4, 1701/-1.9.
- Access FD87-15 (FD-0) after removing a large boulder which had fallen in. Spin 10' of casing. Attempt to sample at 15' (10' from surface) yeilded no recovery due to surface gravel which remained in the casing. We did not have the proper roller bit for clearning out casing. We will clean out Tuesday and resample, either at 15 or 17 ft. Darkness forced us off-site.
- Standby time 1.5 hours due to tide (track rig).

January 30 Friday:

- Return travel to Canton.

February 2 Monday:

- Travel to job site.
- Minor vandalism noted. Fifty feet of fire hose stolen.

February 3 Tuesday: 7:00 - 10:30

- Weather: cloudy, high 30's, sprinkles in mid-morning, clearing at noon.
- Tides: 0841/-0.5, 1455/9.6, 2103/-0.4.
- First Shift: Advance FD87-15 (FD-0) 9 ft before returning tide forced us off.
- Ron DeFilippo on-site to witness undisturbed sampling. He had expected piston sampling and indicated that that might be requested. Would determine if we could terminate FD87-15 (FD-0) early if we have encountered till. He delivered a formal definition of density terms to be used on the boring logs.
- Hold safety meeting.
- Rent a bank of lights so that we will be able to work at night.
- Second Shift: Advance FD87-15 (FD-0) 8 ft to 32 ft. Note trouble with recovery of soils.

- February 4 Wednesday: on-site 7:00 11:00
 - Weather: partly sunny, flurries, mild.
 - Tides: 0935/0.0, 1548/8.9, 2153/0.3.
 - Subcontractor on-site. Cleared FD-Q, partially cleared FD-U and FD-S.
 - First Shift: Have trouble with trash pump. Advance FD87-15 (FD-0) 10 ft to 42 ft. The rig shifted during drilling which slightly bent 10 ft of NW rod.
 - Second Shift: Advance FD87-15 (FD-0) to 48.5 ft, taking one undisturbed sample. Material which caused refusal of tube was sampled. Recovered a grey till-like material. Will take another sample at 50 ft.
- February 5 Thursday: on-site 7:30 12:30
 - Weather: clear, windy, cold-frigid.
 - Tides: 1032/0.4, 1745/7.7.
 - Drill using roller bit to 49 ft through dense material. Water swivel seized up, so we stopped short of 50 ft to take a sample. Sample from 49-51 ft and recover gravelly sand. Drill to 52 ft, noting problems with water pressure and the swivel. The swivel broke at 52 ft and we terminated drilling. Noted caving at 50 ft.
 - We will have problems maintaining an open hole without a decent flow of water and a water swivel. We rented a better trash pump. Canton will ship a new water swivel.
 - We will work the weekend, drilling FD-S and FD-U until the water swivel comes in.
- February 6 Friday: 8:00 1:00
 - Weather: clear, warm (30's), breezy.
 - Tides: 1131/0.8, 1745/7.7.
 - Subcontractor on-site, cleared access to FD-S and FD-U.
 - Complete FD87-20 (FD-S), intersecting no great thickness of till.
 - Water swivel not received. It is being sent Federal Express.
- February 7 Saturday: 9:30 2:30
 - Weather: Clear, warm (40's).
 - Tides: 0603/8.8, 1233/1.0, 1842/7.
 - Attempt to access FD-U, but low tide was too high. We flooded the engine in the attempt.
 - Water swivels arrived too late to enable us to access FD87-15 (FD-0).
- February 8 Sunday: 10:30 3:00
 - Weather: clear, warm (30's)
 - Tides: 0701/8.7, 1336/1.0, 1974/7.4.
 - Complete FD87-15 (FD-0), noting difficulty with caving. Also, as water pressure was not great, had difficulty flushing sandy particles out of the hole. Pull casing.
 - Standby time 1.5 hours due to approaching storm.

- February 9 Monday: 11:00 12:30
 - Weather: violent storm in progress.
 - Tides: 0758/8.8, 1432/0.8.
 - Information from tide table allowed us to schedule work for the remainder of the week and next week.
 - On-site to break casing and attempt boring access, but the heavy snowstorm with high winds coupled with a high low tide thwarted us.
- February 10 Tuesday: 12:00 1:00
 - Weather: clear, sunny, windy, cold 20's.
 - Tides: 0850/9.0, 1520/0.6.
 - Pick up copy of tide tables in Boston.
 - On-site to attempt access, but storm surge too great. Height of tide combined with calm sea should allow access tomorrow as expected.
 - Hold safety meeting.
- February 11 Wednesday: 12:30 5:30
 - Weather: sunny, windy, cold (low 30's).
 - Tides: 0938/9.2, 1602/0.3.
 - Advance FD87-21 (FD-Q) from 0.0 to 12.0 ft.
- February 12 Thursday: 2:00 6:30
 - Weather: overcast, still, low 30's.
 - Tides: 1020/9.5, 1640/0.0.
 - Travel to Waltham USACE NED HQ to deliver four boxes of samples to the Materials and Water Quality Laboratory.
 - Pick up copies of ENG Form 1743, and undisturbed sample shipping box, which they provided.
 - Advance FD87-21 (FD-Q) 10' from 12 to 22 ft.
 - Begin travel to Canton.
- February 16 Monday: on-site 5:00 9:00
 - Tides: 0640/0.0, 1250/9.7, 1903/-0.5.
 - Note inspector change to PM Fisher.
 - Conduct safety meeting.
 - Complete FD87-22 (FD-U) at 22.5' after drilling through 10 ft of till.
- February 17 Tuesday: on-site 7:00 9:00
 - Tides: 0722/-0.1, 1330/9.6, 1941/-0.3.
 - First Shift: Moved onto FD87-21 (FD-Q) but did not advance the boring due to cold weather and mechanical problems.
 - Repaired rig.
 - Second Shift: Advanced FD87-21 (FD-Q) from 22 to 32 ft.

February 18 Wednesday: on-site 6:00 - 10:30

- Tides: 0804/-0.2, 1412/9.3, 2022/-0.1.

- First Shift: Advance FD87-21 (FD-Q) from 32 to 35 ft. Develop pump problems.

- Subcontractor on-site to replace rip rap.

- Second Shift: Noted vandalism of rig during the day. Advanced FD87-21 (FD-Q) from 35 to 50 ft.

February 19 Thursday: on-site 7:00 - 2:00

- Tides: 0852/-0.1, 1458/8.9.

- Completed FD87-21 (FD-Q) at 56.5 ft.

- Picked up equipment.

- Track-mounted CME45, inspector demobilized to Winnepesauke.

February 21 Saturday:

- Subcontractor completed rip rap replacement.

February 23 Monday:

- Samples delivered to USACE NED Materials and Water Ouality Laboratory.

February 25 Wednesday: 12:45 - 1:45

 Quality of rip rap replacement inspected by Gregory Craig of ATL's Manchester, New Hampshire office, as directed by the inspector. Job appears neat and complete.

TABLE II

Telephone Log

<u>Date</u> <u>Conversation</u>

December 30 Tuesday: Ron DeFilippo

- Utility clearance for FD-V: Corps felt that if boring was performed at or near the grassy area and not as requested on Attachment No. 2 of the delivery order, no utility clearance was necessary. Corps authorized moving boring to grassy area.
- Position of borings along the seawall. Locations are referenced from the landward side of the crest of the seawall. No borings would be on the wall. Inspector realized later that the structure emphasized on Attachment No. 2 is the future and not the present seawall.

December 31 Wednesday: Ron DeFilippo

- Completion of boring FD86-1 (V) though we did not intercept an organic layer? Corps authorized boring termination.
- Numbering boring FD-V FD86-1 and the remaining borings FD87-1 through FD87-22 in accordance with previous procedure? Yes.
- ATL will need more jar sample labels.

January 5 Monday: Ron DeFilippo

- Re: access problem created by Ms. Dorothy Scholwin. Recommended calling Frank Stringey, City of Revere, or Dennis Wascowitz, USACE if the city could not help.
- January 5 Monday: Frank Stringey, City of Revere
 The city of Revere was familiar with Ms. Scho
 - The city of Revere was familiar with Ms. Scholwin. Call him later in the week to see what progress he has made.

January 6 Tuesday: Ron DeFilippo

- No organics found in FD-E or FD-F. Can we terminate? Yes. Call the Corps only if the borings are still in the organic layer at the requested completion depth.
- Is the benchmark near FD-S indicated on Attachment No. 2 of the delivery order proper to use to establish the elevations of the borings? Yes.

January 7 Wednesday: Frank Stringey, City of Revere

- Corps will need to obtain a temporary restraining order to give us access across Ms. Scholwin's property.
- A recent change in property laws may have redefined the seaward edge of her property, but he is not sure how.

January 8 Thursday: Ron DeFilippo

- Overrun on surveying charge by 0.5 days. Because this job was bid separately from our main contract, we can only charge the Corps those quantities in our proposal.
- Expect him on-site today.
- Re: temporary restraining order: The Corps will start working on it immediately.

Date

Conversation

January 9 Friday: Ron DeFilippo

- Re: Ms. Scholwin: Corps is presently exploring two avenues: (1) trying to obtain a navigational right to the high tide mark and (2) talking to the commonwealth of Massachusetts to gain an understanding of State Law. It is ATL's responsibility to attempt to obtain an easement through her property. If we should retain her for an easement, we will be reimbursed (Section 4, Paragraph F of the Specifications).
- Corps wanted to know why we did not want to use a crane. (1) To use the crane, we would have to secure permission from at least four land owner's to allow us access to the wall. Gaining this access is doubtful. Also, property is divided into narrow lots with the houses on the streets and often little or no room between them to move a crane through. Property lines are defined by chain link fences, so you could not access the spots by crossing other's property by the seawall. Only the skid rig could be lifted over the seawall, so access to all four spots would be nessary. (2) A large track vehicle would still be needed to clear the boulder rip rap from the boring locations, but it is unlikely that any could be lifted over the breakwater. This would not be a problem if the crane had a clam shell; however, access to the wall would remain a problem for the crane.

January 9 Friday: Ms. Dorothy Scholwin

- She would grant ATL an easement if the request is put in writing, the purpose of the easement and a description of the work included and sent to her VIA registered mail. She would then have her lawyer approve it. She stated that she did not feel opposed to our work; she was only trying to protect her own rights. (Her request was relayed to Canton, and a letter sent VIA Federal Express this afternoon. This letter is included in Section 9b).

January 13 Tuesday: Yuri Yatsevitch

- Job progress: clearance of six borings by Ms. Scholwin, removal of rip rap at FD-0, desire to do all seaward borings this week.

January 20 Tuesday: Yuri Yatsevitch

Job progress.

- Will be taking undisturbed samples tomorrow from 7:00 to 12:00.

January 21 Wednesday: Terry Wong

- Job progress.

- Plan to continue FD-0 tomorrow.

Date Conversation

January 29 Thursday: Ron DeFilippo

- Job progress.
- Requested FD87-19 (FD-T) be terminated at 12' because it is in solid till yeilding bouncing refusal. Termination was granted.
- Will move onto FD-0 today, have remainder of boulders cleared Tuesday.
- Tide schedule will preclude work Friday and Monday.

February 2 Monday: Ron DeFilippo - Job progress.

February 3 Tuesday: Ron DeFilippo

- Regarding early termination of FD87-15 (FD-0). Corps expects that we are drilling through a lense of sand and clay and that breakthrough should be within 10 ft. Material must have blow counts higher than 30/6" to be called till.
- Undisturbed sampling method is acceptable.

February 4 Wednesday: Ron DeFilippo

- Job progress.
- In FD87-15 (FD-0), we will take a split spoon from 45-47 ft. If it is clay, we will take a shelby tube from 47-49 ft.
- Authorized us to continue the boring beyond 50 ft until, we reached and verified till.

February 5 Thursday: Ron DeFilippo

- Job progress and materials encountered.
- Corps requested one final sample from 52 to 54 ft and then we could terminate the boring.

February 6 Friday: Ron DeFilippo

- Job progress.
- If we intersect 10 ft of till in boring FD-S or FD-U, may we terminate the boring? Yes.
- A copy of the drilling logs has been requested by Carabetta Enterprises. Have them submit a formal application to the chief of the Engineering Division.

February 9 Monday: Ron DeFilippo

- Progress of job over weekend.
- Requested and was given information on height of tides from the tide tables, which allowed us to schedule work for the remainder of the week and next week.

February 11 Wednesday: Yuri Yatsevitch

- Re: delivery of samples tomorrow. Left message for Ron DeFilippo.

Date Conversation

- February 12 Thursday: Yuri Yatsevitch, Ron DeFilippo
 - Job progress.
 - Need the figure from the contract dictating specifications for an undisturbed sample shipping box.
 - Need copies of ENG Form 1743.
 - Need to locate first shipment of seven boxes.

February 13 Friday: Ron DeFilippo

- Job progress, soils encountered (woody organic material at base of shell-filled clay).
- Would rely on the driller's expertise regarding the possibility of taking successful undisturbed samples.
- Inspector will be Paul Fisher for the remainder of the job.

February 17 Tuesday: Ron DeFilippo

- Project update.
- Take split spoon samples if undisturbed sample tubes have no recovery in FD87-21.

February 18 Wednesday: Ron DeFilippo

- Project update.
- Requested FD87-21 (FD-Q) be extended past 50 ft if 30+ blow per 6" material is not achieved.
- Sample on 10 ft increments or upon change in strata after 50 ft.

February 19 Thursday: Ron DeFilippo

- Project update.
- Termination of FD87-21 (FD-Q) in dense sandy silt.
- Samples will be delivered to Materials and Water Quality laboratory next week.

February 25 Wednesday: Ron DeFilippo

- Must have someone from ATL inspect the replacement of the rip rap. Someone will come down from the Manchester, NH office.
- Copies of the boring logs were not delivered with the samples. They will be mailed to his attention today.

SECTION 6 CHAIN OF CUSTODY LOGS



ATLANTIC TESTING LABORATORIES, Limited

CHAIN OF CUSTODY LOG

BottlesO Jar Samples 7 boxes, 84 jars Core BoxesO Sampling LogsO Sampling LogsO ate & Time ReceivedDate & Time Transferred CommentsCustodia as sampled 1/22/86 /1:00	ROJECT:	Daughan's	86-D-0011, D.O.	±0018
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ATLANTIC TESTING LABORATORIES, Limited

CHAIN OF CUSTODY LOG

PROJECT:	Roughan!	5 Point 1 -85-D-0011	, D.O. #	8100				
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ATLANTIC TESTING LABORATORIES, Limited

CHAIN OF CUSTODY LOG

PROJECT: ROUGH	HAN'S POINT, REVEN	RE BEACH, 1	la
DACK	133-85-D-001	11, DO#001	8
ITEMS: 3	Tubes <u>Fn-87-15 (UN-Z)</u> A	60-81-21 (UD-1-17	-)
Во	ttles <u>None</u>		 .
Jar Sa	mples 3 Box Fo-87-15,	FD-87-21 + F	10-81-55
Core	Boxes Nove		·
Sampling	Logs NONE		
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-/ / /	12/13/87 1030	JOSEPA COLUCCI	Jac
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SECTION 7

SAFETY REPORTS

WEEKLY SAFETY MEETING	Date held 12/30/810
NEDSO	Date Nem_124807000
THRU: Area Engineer, New England Area	Time /5:00
TO: Safety Office, NED	Report No. <u>clo20</u>
1. Weekly safety meeting was held this date for the fo	llowing personnel:
Contract No. /D.O.No. 0018 Contractor Atlantic T	Testing Laboratories Ltd.
Conducted By Baldoe All personnel present	(Sub)
Subjects discussed (Note, delete, or add): EM 385-1-1, Section:	(Govt)
Accident Prevention Plan	
Lindividual Protective Equipment - cold weath	er clothing, proper boot
Prevention of Falls - use salt around along Back Injury, Safe Lifting Techniques -	e guipment, watch tooth
Back Injury, Safe Lifting Techniques -	4 3000
Fire Prevention -	
Sanitation, First Aid, Waste Disposal -	
Tripping Hazards - trash, hose, nails in lumber -	place stored equipment
Staging, Ladders, Concrete Forms, Safety Nets -	F / = 1 / / /
and the Machine Machine	narv =
Hand Tools, Portable Power Tools, Woodworking Facility Equipment Inspection & Maintenance (Zero Defects) =	watch ropes and cause
Hoisting Equipment -	· ·
, Ropes, Hooks, Chains and Slings -	•
Flectrical Grounding, Temporary Wiring, GFCI -	
Lockouts for safe clearance procedures - electrical	l, pressure, moving parts
Welding, Cutting -	·
41	
Loose Rock and Steep Slopes - seawall slope	s and boulders
Renlasives =	
Hotom Socoty - Lp: Lides	• 7 - 1.1 - cm
Torcic materials - hazards, MDDS, respiratory,	citation -
other - delivered emergency phone #5 and hospital tokation to prepar delivered drillers	red by TA3 Title Geologist
12. Forwarded.	ture theresa A. Readol
7F: EXPOSURE HOURS: Work Date: 12 29, 12 30, 12 31 Non-work Date: 12 28, 11, 12, 13	Resident ingineer Man Hours:
NED APP 62 251	Contr: 52.5 Subcontr: 0

Contr:_ Subcontr: Govt: TOTAL

585

WEEKLY SAFETY MEETING NEDSO	Date held //c/8.7
THRU: Area Engineer, New England Area	Time 2:30
TO: Safety Office, NED	Report No. <u>CD020</u>
1. Weekly safety meeting was held this date for the f	ollowing personnel:
	Testing Laboratories_Ltd.
	t (Contr) <u>5</u>
Subjects discussed (Note, delete, or add): EM 385-1-1, Section:	(Sub) O
Accident Prevention Plan	
Individual Protective Equipment - proper glow	es
Prevention of Falls - watch slick rocks Back Injury, Safe Lifting Techniques -	- tocks leg the
Back Injury, Safe Lifting Techniques -	and the second s
Fire Prevention -	·
Sanitation, First Aid, Waste Disposal - No little	ing!
Aripping Hazards - trash, hose, nails in lumber -	
Staging, Ladders, Concrete Forms, Safety Nets -	
Hand Tools, Portable Power Tools, Woodworking Mach	inery -
Hand Tools, Portable Power Tools, Woodworking Facts Equipment Inspection & Maintenance (Zero Defects)	rave them this
Hoisting Equipment -	weekend.
Ropes, Hooks, Chains and Slings -	•
Floatedcal Grounding, Temporary Wiring, GFCI -	
Lockouts for safe clearance procedures - electrica	1, pressure, moving parts
Welding, Cutting -	
Excavations -	
Loose Rock and Steep Slopes -	•
Explosives -	a malastim of
Explosives - Watch the tides care full Toxic materials - hazards, MSDS, respiratory, ven	tilation - personnel+ equipment
other - delivered emergency numbers to additional drillers Propa 2. Forwarded.	red by <u>Reddoe</u> Title Geol.
Sign OF: EXPOSURE HOURS: Work Date: 15, 16, 17, 18, 19	Resident Engineer Man Hours:
Non-work Date: 1/4, 1/10	Contr: 186
NED APR FZ 251	Subcontr: 2

TOTAL

WEEKLY	SAFETY MEETING	Pote held I alak
NEDSO-		Date held 1/13/86
HRU: Area Engineer, Dew Eng	land Area	7:00
No: Safety Office, NED		Report No. Choao
l. Weekly safety meeting was held	d this date for t	the following personnel:
Contract No. /D.O.No. 0018	Contractor Atlan	ntic Testing Laboratories_ Ltd.
Conducted By TBeddoe	All personnel pr	resent (Contr)
Subjects discussed (Note, delete, EM 385-1-1, Section:	or add):	(Govt)
Accident Prevention Plan	e e e e e e e e e e e e e e e e e e e	
Individual Protective Equipmen	it -	
Prevention of Falls - wat.	ch footing	y at all times
Back Injury, Safe Lifting Tech		·
Fire Prevention -		
Samitation, First Aid, Waste I	Disposal -	
Tripping Hazards - trash, hose		r -
Staging, Ladders, Concrete For		
Hand Tools, Portable Power To	ols, Woodworking	Machinery -
, Equipment Inspection & Mainte	nance (Zero Defec	ets) -
Hoisting Equipment -		
Ropes, Hooks, Chains and Slin	gs -	•
Crounding Tempora	ry Wiring, GFCI	-
Lockouts for safe clearance p	procedures - elec	trical, pressure, moving parts -
Welding, Cutting -		
Excavations -		
Leose Rock and Steep Slopes	-	•
Explosives -		
Water Safety - Toxic materials - hazards, M	SDS, respiratory	, ventilation -
Cther -		Prepared by Maddoe Title Ge
2. Forwarded.		$\lambda \sim 0.11$
CF: EXPOSURE HOURS: Work Date: // 2 ///3 // Non-work Date: /// //	1/14	Signature Resident Engineer Man Hours: Contr: 80
NED APR F2 251		Subcontr: 4.5

Man Hours: Contr: Subcontr: Govt: TOTAL:

TOTAL:

NEDSO	Date nero 1/2//8/
THRU: Area Engineer, New Englandarea	Time 12:00
TO: Safety Office, NED	Report No. 020
1. Weekly safety meeting was held this date for the	following personnel:
Contract No. /D.O.No. 18 Contractor Atlantic	Testing Laboratories Ltd.
	ent (Contr) 3
Subjects discussed (Note, delete, or add): EM 385-1-1, Section:	(Govt)
Accident Prevention Plan	
Individual Protective Equipment - hard houts	
Individual Protective Equipment - National Provention of Falls - Watch Pooting	on coloble stopes
Back Injury, Safe Lifting Techniques -	and the second s
Fire Prevention -	
Sanitation, First Aid, Waste Disposal -	
Pripping Hazards - trash, hose, nails in lumber -	
Staging, Ladders, Concrete Forms, Safety Nets -	
Hand Tools, Portable Power Tools, Woodworking Mac	
Equipment Inspection & Maintenance (Zero Defects)	· -
Litoisting Equipment -	
Ropes, Hooks, Chains and Slings -	
Temporary Wiring, GPCI -	
Lockouts for safe clearance procedures - electric	cal, pressure, moving parts -
Welding, Cutting -	
Excavations -	
Loose Rock and Steep Slopes -	•
Explosives -	
Maton Safatar -	-Lilakian -
Toxic materials - hazards, MSDS, respiratory, ve	entitation –
Cther - Prep	ared by Reddoe Title Geol
2. Forwarded.	1 D 1 - 1
	nature Theresa A. Beddoe
TF: EXPOSURE HOURS:	Resident Engineer
Work Date: 1/26,1/27,1/28,1/29 Non-work Date: 1/25,1/30,1/31	Man Hours: Contr: 57.5
NED APR 62 251	Subcontr: 0
	Govt:

WEEKLY SAFETY MEETING

NEDSO	WEEKLY SAFETY MEETING	Date held 2/3/87
THRU: Area Engineer, D	Dew England Area	Time
TO: Safety Office, NED)	Report No. COJO
1. Weekly safety meeting	was held this date for	the following personnel:
Contract No. /D.O.No. 00	Contractor Atla	antic Testing Laboratories _ Ltd.
Conducted By Beddoe	All personnel	present (Contr)
Subjects discussed (Note, EM 385-1-1, Section:		(Govt)
Accident Prevention P	lan	
Individual Protective	Equipment - hard ha	ts, steel foed shoes
Prevention of Falls -		
Back Injury, Safe Lif	ting Techniques -	s e e ·
Fire Prevention -	•	
Sanitation, First Aid	, Waste Disposal -	(2)
Fripping Hazards - tr	ash, hose, nails in lumb	per - rocks'
Staging, Ladders, Con	crete Forms, Safety Nets	5 -
was mania Powtshia	Power Tools, Woodworking	Machinery -
Equipment Inspection	& Maintenance (Zero Defe	ects). 1, Re ALCOM
Hoisting Equipment -		
Ropes, Hooks, Chains	and Slings -	•
Flectrical Grounding	, Temporary Wiring, GFCI	- marked and marked a
Lockouts for safe cle	earance procedures - ele	ctrical, pressure, moving parts -
Welding, Cutting -	•	•
Excavations -	antela	footing in rocks + grave
Loose Rock and Steep	Slopes - Warter	73.79
Explosives -		
Water Safety - Toxic materials - ha	zards, MSDS, respirator	y, ventilation -
Cther -		Prepared by Redduce Title Geol
2. Forwarded.		2 2 1 1 2
		Signature heresa An Residere Resident Engineer
OF: EXPOSURE HOURS: Work Date: 1/2	213, 214, 2/5, 2/6, 2/7	Man Hours:
Non-work Date:		Contr: 102,0
NEO PE 251		Subcontr: 7.5

Govt:____TOTAL::

WEEKLY SAFET	TY MEETING		_
NEDSO	1	Date held 2/9/8	<u></u>
THRU: Area Engineer, 1200 England	Area	Time	
TO: Safety Office, NED		Report No. 2004	-0_
1. Weekly safety meeting was held thi	s date for the fol	llowing personnel:	· · · · · · · · · · · · · · · · · · ·
Contract No. /D.O.No. 0018 Cont	ractor Atlantic T	esting Laboratori	es_ Ltd.
	personnel present	(Contr) <u>3</u> (Sub) -	
Subjects discussed (Note, delete, or a EM 385-1-1, Section:	dd):	(Govt)	=
Accident Prevention Plan		. •	
Individual Protective Equipment -		·	•
Prevention of Falls -			
Back Injury, Safe Lifting Technique	es -		
Fire Prevention -		•	
Sanitation, First Aid, Waste Dispos	sal -		
Tripping Hazards - trash, hose, na			
Staging, Ladders, Concrete Forms,			
Hand Tools, Portable Power Tools,		nery -	
/ Equipment Inspection & Maintenance	(Zero Defects) -		
, Hoisting Equipment -		A a -lassa	- 500W
Hoisting Equipment - Ropes, Hooks, Chains and Slings -	gin tope will	need replacing	1
	TIME OF T		· · ·
Lockouts for safe clearance proceed	lures - electrical	, pressure, moving	partie
Welding, Cutting -	•		
Excavations -			
Loose Rock and Steep Slopes -	••	•	•
Explosives - Water Safety - make sure water Toxic materials - hazards, MSDS,	er shallow ever respiratory, vent	ough to allow ilation - don't	tiq to pass
Cther -	Prenar	ed by Beddoe	Htle Geol.

OF: EXPOSURE HOURS: Work Date: 2/8 Non-work Date: HED APR FZ 251

2. Forwarded.

Signature Resident Engineer Man Hours:

Contr: Subcontr: Govt:

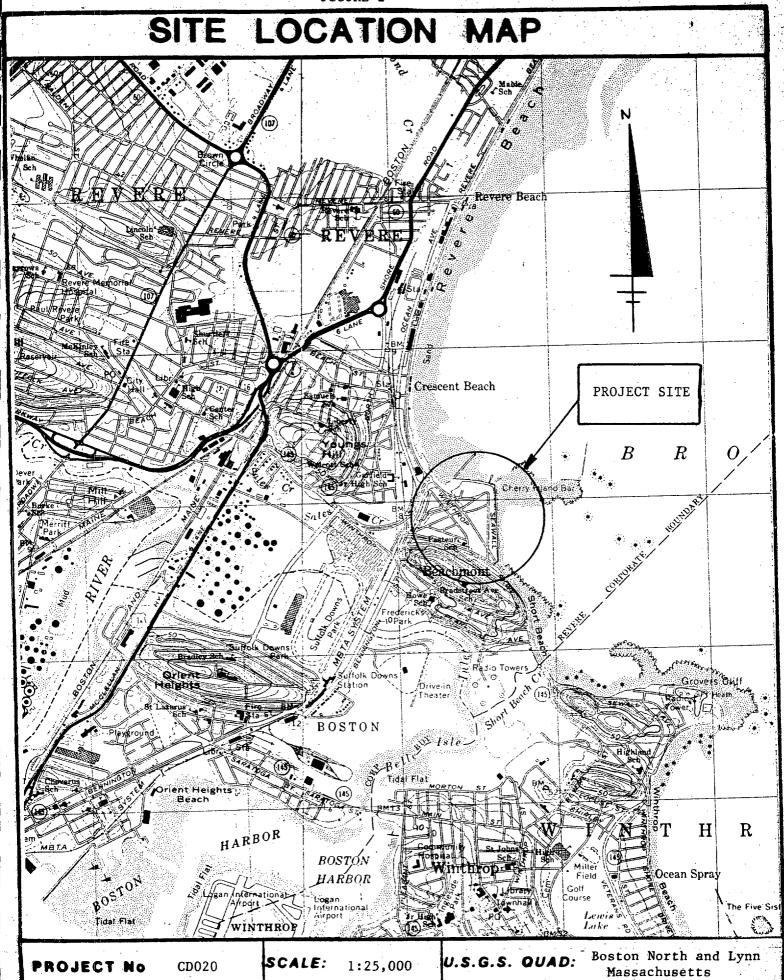
NEDSO WEEKIN SAFETY MEETING	Date held 2/16/87
THRU: Area Engineer, NEW ENGLANATES	Time
TO: Safety Office, NED	Report No. <u>CO020</u>
1. Weekly safety meeting was held this date for the fo	ollowing personnel:
	Testing Laboratories Ltd.
Conducted By Pric FISHER All personnel present	t (Contr)
Subjects discussed (Note, delete, or add): EM 385-1-1, Section:	(Govt)
Accident Prevention Plan	
Individual Protective Equipment - Boots	
Frevention of Falls - RIPRAP / LE	
Back Injury, Safe Lifting Techniques -	•
Fire Prevention -	
Sanitation, First Aid, Waste Disposal -	,
Tripping Hazards - trash, hose, nails in lumber -	
Staging, Ladders, Concrete Forms, Safety Nets -	
Hand Tools, Portable Power Tools, Woodworking Machi	nery -
Hand Tools, Portable Power Tools, Woodworking Factor Equipment Inspection & Maintenance (Zero Defects) -	. NANTERERE DE MIC
Moisting Equipment - WRILL RIG	
Ropes, Hooks, Chains and Slings - ABLE	
Floatrical Grounding, Temporary Wiring, GFCI -	
Lockouts for safe clearance procedures - electrical	l, pressure, moving parts -
Welding, Cutting -	
Excavations -	
Loose Rock and Steep Slopes - RID RAP	
Explosives -	•
Water Safety - OceAN Toxic materials - hazards, MSDS, respiratory, vent	cilation -
Cther - Prepar	red by P. FISHER Title ENG
2. Forwarded.	6 Jan XL
Signs OF: EXPOSURE HOURS: Work Date: 2/16, 2/17, 2/18, 5/19 Non-work Date: 2/15, 2/20, 2/2/	Man Hours: Contr: 58 /2
HEW APO STATE	Subcontr: 6 /s

Govt:

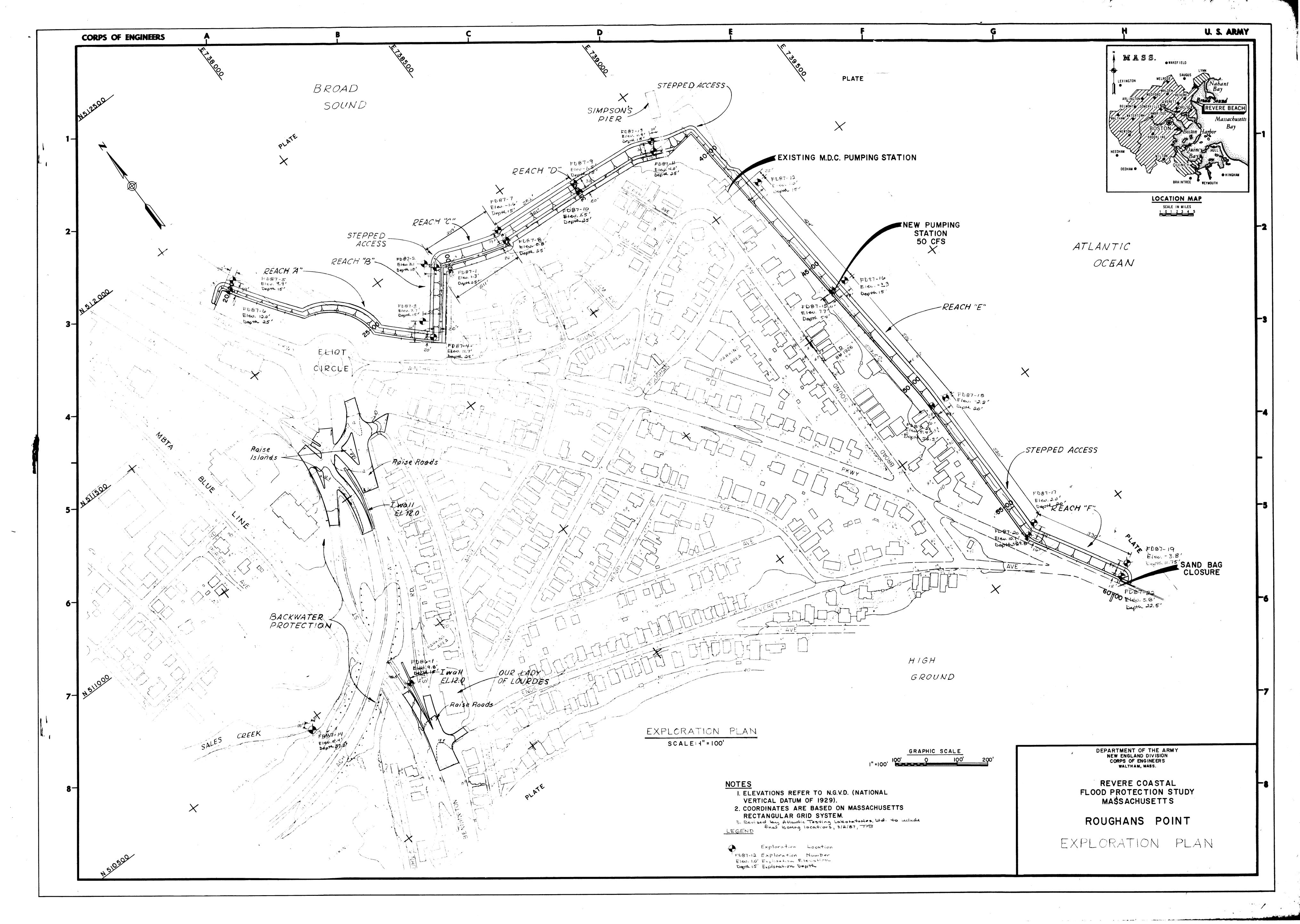
a. Figure 1 - General Project Map

GENERAL PROJECT MAP Parker Rifer National Viidlife Refuge Plum Island Stare Park PROJECT SITE S S/A C H U S E T T S B ABOSTON Quincy & Scituate SCALE: 1 in = 7 mi. ROJECT No **MASSACHUSETTS** CD020

b. Figure 2 – Site Location Map



 $c. \quad Figure \ 3-Boring \ Location \ Plan$



o-ordinat	ghan's Point, Devere MA D86-1 Dim. (Casing) 31/4" Hollow Ster Auget es: X see X Sketch Told & Saaninen	3 3 3 3 1 8 6 3 1 8 6 3 1 8 6 8 6 9	
		from conditions for proposed	
		earth berms.	
	op of Hole 9.80 N.S.L. urden Drilled 15.0 Feet	Casing Left in Place	Fa
levation To levation Sc otal Sock (otal Depth	op of Nock		
ore Recove	red O Ft.; Dien in. 1 3/8	Water Table Depth 8.6/	
Depth	Method of Drilling	I X DACK	
From To	3/4" ID Hollow Stern Augp ~ *	Sround Water	<u>۔ ۔ جو</u> ا
	13/2" ID Split Spoon Sampler	Boring Location Sketch	
		Overtunden Record	ڪ 🕶
	15 with 13/8" split spoon sampling	Read Seitting Pa	1 gas
	every 5:		1 96
			·F
		II	

U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DIVISION	Diam. (Casing) 31/4" Stem Augen						
FIELD LOG OF TEST BORING	Co-ordinates: W see	K skotch					
Elevation Top of Boring 9.80 M.S.L. Hammer Wt. 140 Boring Started 12/31/86 Total Overburden Drilled 15.0 Feet Hammer Drop 30" Baring Campleted 12/21/8/9							
Total Rock Drilled		DatelPage					
Elevation Bottom of Boring - 5.6							
Total Depth of Boring 15.C		Ad Soannen					
Core Recovered O No. Boxes Core Recovered O Ft : Diam	·	d-mounted CHE 45					
Soil Samples / 3/8 In. Diam							
Soil Samplesin. Diam	•						
DEPTH CORE/SAMPLE BLOWS	SAMPLING AND CORING						
D.O' I'- 2' NO. SIZE PARSE REPLY	O PERATIONS	CLASSIFICATION OF MATERIALS					
- REL 3 5a	mple using 13/8" 10 by	Dark brown me SAND and					
	long split spoon '	& GRAVEL, little SILT, trace					
2.0' = 9	1/4" ID Hollow Stem	ORGANIC MATERIAL (grass,					
	uger to 5.0'	roots) (moist, nonplastic)					
	worthout boring	medium dense 3D-FILL					
		Note softer drilling = consistency at 4.01					
= 55	ample as above	medium grey & SAND =					
5-2 13 202 7		and SILT, Hace &					
7.0' = 11		GRAVEL, trace CLAY					
	luger to 101	E					
		(moist, very slightly					
		plastic) medium dense					
		SM					
117.0		-					
GENERAL REMARKS:	A D A A ATI						
Elevations as surveyed in the heack mark near FD-3 All soil sampling performed D1586 except as noted.	(FOB I- au)						

Sile	Dou	ghan	s Po	int,	Rec	ere MA	Boring	FD81	lo -1		Page 3 of <u>U</u>	
10.0	i • 21	C OH	E/SAI Bize	' '	20.00	64 SAMPL	ING AND	CORING		CLASSIFICATION OF	MATEN IALS	
II.D	-	5-3 4	1311	80%	19 24	Sample u	split	%" 10 b	ry '	Soils similat no clay - 5		- - -
12.0		5-3B _.	10	80%	26 30	-		- Θ (100 Δ		Hedium brown	4	
13.0				·		to 13.0	5 1	rem Auge		trace & GRAVEL (saturated, non	plastic)	•
		5-4	13%	402	23-17 19 20	Samp	e as	above	2	soils similar with a 1" plu soils similar	40 5-3B	
15.0	-			-		BOHRA		ated at		<u>510</u>		
		, , , , , , , , , , , , , , , , , , ,							,			
					•				•			

oring	Noi_	and Point,	Revere MA	SUBSURFACE WATER OBSERVATIONS			
ATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS	
1/31/8/0	9100	13.0'	15,01	8.6'	1,2'	after booing completion	
						in augets	
· .							
				<u> </u>			
				· · · · · · · · · · · · · · · · · · ·			
	<u> </u>						
				·			
	·					·	
ote:	Depth	s are in feet	below origina	l ground			
			BORING	LOCATION SK	ETCH DO	+ to Scale	
		STATE OF THE OF	+Kway	750002	4,		

Lady of

13.51

1,59 (Test)

Boring No FARD-1

PROJECT NO. Site Roughan's Point, Revere MA Hollow Stem Hole No. FD87-1 Dim. (Casing) 314" Hollow Stem Co-ordinates: X see & sketch Orilled by Todd + Saatinen	D.O. ±0018 Page 1 of 4 Pages Soring Started 1/6/87 Soring Completed 1/6/87 Report Submitted
Purpose of Exploration determine foundation tevetments, sluive gate and earth	
Elevation Top of Hole 1:30 M.S.L. Total Overburden Drilled 25.0 Feet Elevation Top of Nock	Casing Left in Place Feet
Total Rock Drilled O Feet Total Depth of Nois 25.0 Feet Core Recovered O Ft.; Dim. — In.	
3011 Samples	Water Table Depth 5.0
pepth Method of Brilling From To and Type of Bit Used 20 23.03/4"ID Hollow Stem Auger * 23.025.0198"ID Split Spoon Sampler *with 13/8"ID Split Spoon Sampling every 5'.	Bround Water
Propared by	40.

	S OF E	NGINE	EERS	Boring No. FD27-1 Desig.	F Diam. (Casing) 31/4" Hollowa Stem						
FIELD L	OG OF	TES	T BOR	NG Co-ordinates: X 55	e K sketch						
Elevation Top of Boring 1,30 M.S.L. Hammer Wt. 140 165 Boring Started 1/6/87 Total Overburden Drilled 25:0 Feet Hammer Drop 30*1 Elevation Top of Rock M.S.L. Casing Left 0' Boring Completed 1/6/87 Total Rock Drilled 0 Feet Subsentace Water Datal Page 4 Elevation Bottom of Boring 23:7 M.S.L. Obs. Well NO Total Depth of Boring 25:0 Feet Drilled By Todd + Saaking Manual CMEUS Core Recovered 0 % No. Boxes 0 Mfg. Dec. Drill Skid Manual Add CMEUS Core Recovered 0 Ft: Diam. in. Inspected By: Beddoe Soil Samples 13/6 In. Diam. 6 No. Classification By: Beddoe DEPTH CORE/SAMPLE BLOWS / CAMPING AND CORING											
DEPTH	<u>1 </u>		PER EI	AC SAMPLING AND CORING	CLASSIFICATION OF MATERIALS						
	5-1	R	5% 15 21	Sample using 18/8" by 2' long splits	D Med. brown cf GRAVEL, poon some cmf SAND, trace SILT, trace DEBRIS (glass						
2.0				3/4"10 Hollow Ster Auger to 5.0'. Augering easy throughout box	sound trag ments, coasturated						
7.0	5-a	3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7% 3	Sample as abo	and conf SAND, trace SILT (saturated, nonplas-						
				Auger to 10.0'	medium brown & SAND and SILT, little CLAY Csaturated, slightly plastic						
ATI so	ions L us	as e noling	beve perfo	jed in the field be hmark near FD-	(FD87-20),						

Sile	Rough	an's	Poi	ny,	Rev	ere MA Boing No.	For 3
T.	PTH21		/5A W	₩ .	CO. T.	6"SAMPLING AND CORING	CLASSIFICATION OF MATERIALS
10.0				75%	9	Sample using 13/8" ID by 21 long split spoon sampler	Had, gray-brown CLAY and SILT, trace & SAND, trace
12.0				- -	21	31/4" ID Hollow Stem	Plastic) hard CL
					•	Auger to 15.01	
15.0		5-4	w/80	100%	14	sample as above	Med grey cut SAND and CR GRAVEL, trace SILT
חים	-				10	Auger to 20.0'	(sat., nonplostic) with] one layer of soil similar to 5-3
20.0	-				17	Sample as above	medium dense SW
<u>aa.o</u>		5-5	1700	100/	13 9 7	Augerto 23,01	Hace of GRAVEL, Hace SILT (sat., nonplastic)
23.0		5-6	318	100	13		Medium dense SP 7 Very dense Similar Soils - SP
25,0					43	BOHNG TERMINATED at 25.01, 1/6/87.	

Page 4 of 4

EPTH-BOT. F BORING 25.0 ow original	DEPTH TO WATER	ELEVATION WATER -3.7	after boring completion in augets
ow original			in augets
ow original			
ow original			
ow original	ground		
aw original	l ground		
ow original	l ground		
ow original	around		
3road 6	Sound		Reach
		Requested Bothng Location FD87-1 Elev. 1.30'	· · · · · · · · · · · · · · · · · · ·
Reach		each B	Top of Seawall
	Reach	Reach A	Elev. 1.30' Reach B

;59(Test)

Boring No. ED87-1

site Roughan's Point, Revere M.	PROJECT NO. D.O. # 0018 Page 1 of 4 Pages
Hole No. ED87-a Diam. (Casing) 3/4"/0]	
Co-ordinates: X see X Sketch	Soring Completed 1/6/87
Orilled by Cambridge + Murdock	Report Submitted
	Poundation conditions for proposed and earth berms.
Elevation Top of Hole 0,00 N	
Total Overburden DrilledF Elevation Top of RockM Elevation Bottom of MoleM Total Rock Drilled	i.s.L. i.s.L. so t
Core Recovered 0 5 Core Recovered 0 Ft.; 0 m. 0 Soil Samples 13/8 in. 0 m. 4 0 Total Samples 1 0	in. 10.
Depth Method of Brilling From To and Type of Sit Used	
0.0 13.0 3/14" ID Hollow Stem Augen 13.0 15.0 13/8" ID Split Spoon Saw	Boring Location Sketch Book Page 4 Overburden Record Page 2-3
every 5!	Sampling Page
Present to THE eddoe	ting Labs, Ltd.

U.S. ARMY CORPS OF ENGINEERS	Sile Roughans Point, Ken	ete MA Page Xat 4 Pages
NEW ENGLAND DIVISION	Boring No. <u>FD87-2</u> Desig. <u>E</u>	Diam. (Cosing) 3/4 Stem Auger
FIELD LOG OF TEST BORING	Co-ordinates: N see ske	
Elevation Top of BoringO,OO		Boring Started 1-6-87
Total Overburden Drilled 15.0	Feet Hammer Drop 30'	Boring Completed 1-6-87
Elevation Top of Rock		
Total Rack Drilled O		DatePage
Elevation Bottom of Boring -15.0		Hidge + Hurdock
Total Depth of Boring 15.0 Core Recovered 0 % No. Boxes		K mounted CME45
Core Recovered O Ft : Dlam.		
Soll Samples 13/8 in. Diam.		Beddoe
Soil Samplesin. Dlam.	No. Classification By:	
	SAMPLING AND CORING	AL ADDICIONATION OF WATERIAL C
O.O I 2' NO. SIZE NIGE RECYY	OPERATIONS	CLASSIFICATION OF MATERIALS
	mple using 13/8" ID by	Madi brown of BRAVEL
	long split spoon	and conf SAND, trace
5-1 13/8 20/2 17 50	mpler	
2.0' = 21	·	SHELL FRAGMENTS, trace
	14" 10 Hollowstem	SILT (saturated, nonplastic)
	uger to 5:0!	
4	ugeting easy	dense GW
	roughout bothing.	Ε.
=		E
5.0		
2 50	imple as above	Medigray SILT, some
31 3		SAND, some CLAY, Hace
3-2/8/252 3		E
7.0 = 3		PORAUEL (sat., mod)
	rder to 10.01	plastic) medium
		Still MH
		1 Stite Mitt
10.0		1
GENERAL REMARKS	in the Riold bu.	
ATL using benchmo	ull near FD-5 (FD8)	20).
All soil sampling performed i	n accordance with ASTM	
D1586 except as noted.	No. of the last of	

	Sile	oug ha	n's F	Point	, 72	were	L HA	Boring		-D87-	2 (E)		Page _	<u>3</u> 4
	0 . 10.0'	EP1H	COH #α	8122	45°LE FE 7/14 P470°E	STORE CREEK	-	NG AND C			CLASS	FICAT	ION OF	MATEH	IALS
			s-3		REZ	18 7 3	Sample a' long si samplet.	plit spo	1.3/8"	1D beg	MH	as	ab	ove.	
	iaio					9	31/4" 1D Auger	Hollow	Stew o'	\			••		=======================================
	13.0	=				8,	Sample	*	•) -P	Md. gr	ey c	nf sh	IND a	
		-	5-4	13%	75%								i, little		-
	15.0						BOH Ng 7	Termi no 16/87.	ited ,	at	1		JAC - 4C		lium
													a.		
ن ند								٠.							
								·							
	•														
		_													<u> </u>
		-										·			

ATE TIM	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	elevation water	REMARKS
16/87 10:			3.7'	-3.7'	0.
					in augers after
					horing completed
					, ,
				<u></u>	
	· · · · · · · · · · · · · · · · · · ·		<u> </u>		
				<u></u>	
	oths are in feet	,	LOCATION SKE	ETCH Not	to Scale
,	Br	oad Sou	FE	187-2 ev. 0.00'	Reach C

Seawall

Note: As-built boring location is the requested location

Boring No. FD87-2

Reach A

Reach B

.59(Test)

Site Roughans Point, Revere MA Hole No. FD87-3 Dism. (Casing) 3/4"10 Hollow Stem Co-ordinates: X see & sketch Drilled by Todd + Saarinan	Boring Completed	
Purpose of Exploration determine foundation	rn conditions for proposed	
revetments, sluice gote, and earth		
Elevation Top of Hole 7:70 M.S.L. Total Overburden Drilled 15:0 Feet	Casing Left in Place	foot
Elevation Top of Rock	Water Table Dooth 7.0'	
Pepth From To and Type of Bit Used 0.0 13.0 3'/4" ID Hollow Stem Auger + 13.0 15.0 13/8" ID Split Spoon Sampler Funith 13/8" ID Split Spoon Sampling every 5!	Bround Water	4 2-3
Propared by TABOOLO Piets Sets Substituted by Atlantic Tenting Lab	s, Ital.	

Site Druchan's Point, REDETENA Poge Xof 4 Poges U.S. ARMY CORPS OF ENGINEERS Boring No. <u>FD27-3</u> Desig. <u>C</u> Diam. (Casing) 32 NEW ENGLAND DIVISION Co-ordinates: N see sketch & FIELD LOG OF TEST BORING Hammer Wt. 140 # Boring Started 1-6-87 7. 70 M.S.L. Elevation Top of Boring Hommer Drop 30 " Total Overburden Drilled_ 15,0 __ Feet Boring Completed 1-6-87 Elevation Top of Rock_ Total Rock Drilled_ Feet Subserface Water Date -7.30 MS.L. Elevation Bottom of Boring_ Obs. Well _ no 15.0 Drilled By Todd + Soarine Total Depth of Boring_ Mrg. Dea Drill Skid-mounted CME45 O % No. Boxes __ Core Recovered ___ Inspected By: Beddor O Ft :____ Diam. ____in. Classification By: _ Beddor 13/8 In. Diam. 4 No. Soll Samples __ Soil Samples __In. Diam. ____ No. Classification By: CORE/SAMPLE BLOWS DEPTH 6" SAMPLING AND CORING CLASSIFICATION OF MATERIALS SIZE PARE RECY 102 O PERATIONS NO. Sample using 13/8" 10 Hed, brown conf SAND, by a' long split spoon little & GRAVEL, trace 5-1 13" 60% sampler. SHELL FRAGMENTS, HOR 12 2.0 314" ID Hollow Stem SILT (moist, nonplastic) Augen to 5.0! medium dense SW Augering easy throughout boting. 5.0 sample as above Similar Soils 12 with one 1/2" layer Med. 5-2 13 50 15 grey SILT, some me SAND, 18 some clay (sat., mod. pl.) 7.0 Auger to 10.0! (saturated, nonplastic) medium dense 5W GENERAL REMARKS: Elevations as surveyed in the field by ATL using benchmark FD-3 (FD87-20).

.58(Test)

D1586 except as noted.

Boring No. FD87-3

All soil sampling performed in accordance with ASTM

	13.0	12. O		Sile
			EPTH I* J.	ughan
	5-4	s-3	C O H C	n's Pa
	30	ij		oint,
	ร๐%	50%	ATLE PAPER	Rev
	14 9 12 9	3323	200 200 200 200 200 200 200 200 200 200	iere
10/87.	Auger -	Sample 2' long Sample 3'/4" 1D	6" SAMPLI OPE	HA
termi va	to 13.0	oplit	NG AND C	Boring 1
ted at		2 boou	ORING	10. F D8
				7-3
(saturated, non medium dense	etc), trace f. £ GRAVEL (wo, medium stiff vote natural su odor. "PE Dark Grey cf GR cmf SAND, trace	SW as allow (no sample r Med grey SILT trace ORGANIC	CLASSIFICATION OF	(c)
-	et, plastic) PEMH Liphur AT" AUEL and	and CLAY_ S (roots,]	MATEH IALS	Fage 3
				-

Site:						rass yot 4			
3oring		hans Pai D87-3	<u>——</u>	SUBSURFACE WATER OBSERVATIONS					
DATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION	REMARKS			
1/6/87	1:00	13.0	15.0	7.0	0,701	in augers after			
		·				boring terminated.			
		·							
	ļ			 					
•	 								
	 			 	 				
	+								
	 								
	 				 				
	 								
				 					
lote:	Depth	s are in feet	below origina	l ground					
ote:	Depth:			LOCATION SKI	ETCH De	+ to Scale Reach(
Note:	Depth		BORING	LOCATION SKI	each B	Reach C			
		Top of. Seawal	BORING Sour	LOCATION SKI	each B-	Top of Seawage			

Site <u>Poughan's Point</u> , <u>Pevere MA</u> Hollow Stem Hole No. FD87-4 Dim. (Casing) 3/4" Huger	9.0. #0018 Page 1 of 4 Pages Soring Started 1/6/86
Co-ordinates: * see Ksketch Orillad by Cambridge + Murdock	Soring Completed 1/6/86
Purpose of Exploration determine foundation revoluents, sluice gate and enough	
Elevation Top of Nois	Casing Left in PlaceFee
Elevation Top of Nock	
3011 Samples In. Diam No. 3011 Samples In. Diam No.	Water Table Depth 2.0'
Depth Sethod of Orllling From To and Type of Bit Used 0.0 23.0 31/4" ID Hollow Stem Auger* 23.0 25.0 13/8" ID Solit Spoon Sampler *with 13/8" ID Solit Spoon Sampling enery 5!	Sround Stater Section Sketch Section Page 4 Boring Location Sketch Section Page 4 Overtuinden Record Page 7 Rock Orilling Page 7 Page 7
Propered by TABeddoe Field Sala Substitute by Atlantic Testing Labs	Like Date

,		U.S. B OF I NGLAN	ENGIR	NEER	_	Boring No. <u>F087-4</u>	(Desig	Diam. (Cosing) 31/4" Stem Auger				
FIEL	D LC	G OF	TE	ST E	ORIN	IG Co-ordinates:	K see ske	tch &	: '			
Elevation Top of Boring //, 70 M.S.L. Hammer Wt. 140# Boring Started 1/6/27 Total Overburden Drilled 25.0 Feet Hammer Drop 30" Elevation Top of Rock M.S.L. Casing Left 0' Boring Completed 1/6/87 Elevation Top of Rock M.S.L. Casing Left 0' Boring Completed 1/6/87 Total Rock Drilled 0 Feet Subserface Water Date Page 4 Elevation Bottom of Boring -13.3 M.S.L. Obs. Well 100 Total Depth of Boring 25.0 Feet Drilled By Cambondage + Mundock Core Recovered 0 % No. Boxes 0 Mfg. Des. Drill CME 45 Core Recovered 0 Ft: Diam. In. Inspected By: Beddoe Soil Samples 13/6 in. Diam. No. Classification By: Beddoe Soil Samples In. Diam. No. Classification By: Beddoe												
	r• 2′	NO.			CORE REAVY	OPERATIONS	RING	CLASSIFICATION OF MATERIALS				
2.0'		5-I		ΣEC 50%	3 4	Jample using 13 2' long split s sampler		Light brown & SAND, trace ORGANICS (roots, grass), trace & GRAVEL, trace SILT				
		·				314" 10 Hollow Auger to 50 Augering ea throughout	sy	(moist, nonplastic) loose <u>SP</u>				
5.01		1	-	-	13	Sample as a	above	Medibrown me SAND,	E			
7.0'	-	5-2	7/0	75%	10 8 7			little & GRAVEL, Hace SILT (moist, nonplastic)				
						Auger to 10.0		medium dense <u>SP</u>				
GEN	ERAL	REM	ARK	 S;	<u> </u>	:						
E/e	NTL ATL 1 soi 586 e	013 - U4 1 sam	ae Swa plin	s so g pe	rform	eyed in the E mask reat led in accordance s	FD-S CF with ASTM	087-20).				

58(Test)

	Sile	. Po	ugho	ms	Poù	nt		Botto No.	Poge 3
 		1.91	COH NO	E /5A I	APLE	(<u>)</u>		ING AND CORING	CLASSIFICATION OF MATERIALS
	10.0 12.D		5-3	960	100%	8 2 2 1		using 13/8" ID by split spoon	Dark brown SILT, little ORDANG HATERIAL (grass, roots, worms) Hace CLAY, Hace & SAND
		-					31/4" 1D to 15.0	Hollow Stem Auger	(moist, very slightly plastic) = soft OL "PEAT! Note sulphur odor = (natural)
	17.0			MO	80%	4 4 9 12		Le as above	Dark brown & SAND, some = SILT, little CLAY, trace c = GRAVEL Lwet, slightly =
								to 20.0'	plactic) medium dense
	20.0	_	5-5	136	100	70 16 12		le as above - 40 83.0'	Dank grey SILT, some CLAY, little & SAND (sodurated, moderately plastic) very MH Note sulphur odon.
	25.	-	5-0	e 132	2 100	15 13 10 10		le as above	(northal). Dark brown conf SAND and
			عتتاتينا	F) (BOHNE 1/6/87.	Terminated at 25	o'slightly plastic medium dense <u>sw</u>

Boring	No:	Lans Pol ED87-4		SUBSURFACE WATER OBSERVATIONS			
DATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS	
16/87	1:00	23.0'	25.0'	2.0'	9,70'	in augers after	
					·	boring completion	
		·					
				<u> </u>			
		<u> </u>					
							
			below original				
	N.		BORING	LOCATION SKE	TCH NOT	t to Scale	
			Broads	ound		Read	
			\	₽ _e	ach B—	2000 P	
			_ Deo	ech A		Seawalf	

Dote: As-built boring location is the FORM 59 (Test)

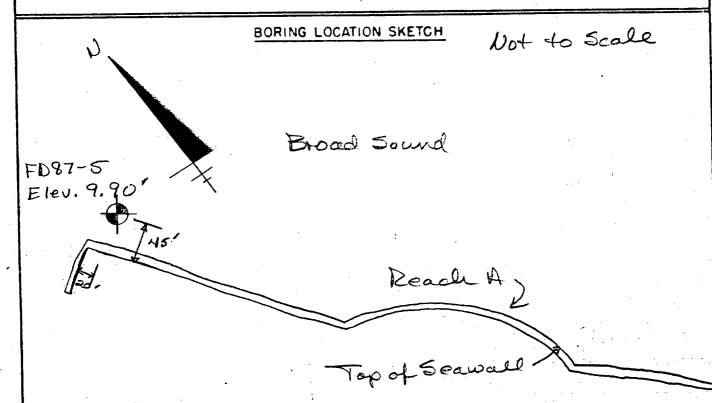
Boring No. FD87-E

Site Roughans Point, Revere M	OJECT NO. D.O. # OOLB A Page 1 of 4 Pages
Hole No. FD87-5 Diam. (Casing) 3/4" the	gor Stem Boring Started 1/6/86
Co-ordinates: X see & sketch	Boring Completed 1/6/84
Drilled by Cambridge & Hurdock	Report Submitted
	ndation conditions for proposed
tendments, sluire gade as	nd earth borms.
Elevation Top of Hole 9,90 N.S.	L. Casing Laft in PlaceFeet
Total Overburden Drilled 15.0 Feet	
Elevation Top of RockH.S.	L.
Elevation Bottom of Hole 5.1 M.S.	
Total Rock Drilled Feet	•
Total Depth of Hole 15.0 Feet	
Core Recovered	•
Core Recovered O Ft.; Dimin.	
3011 Samples	Water Table Depth 5,25'
Depth Method of Drilling	1 S DECK
From To and Type of Sit Used	8 round Noter Section Page 4
0.0 13.0 3'14" ID Hollow Stem Auge, 13.0 15.0 13/6" ID Split Spoon Sam	and a second sec
15.0 17.0 178 12 22.11	Overtainten Record
	Red Drilling Page
#with 13/8" 10 split spoons	impling
every 5'	
Present by TABEDDOE FIELD	
substead to Atlantic Testino	, labs, Ltd.

FI		U.S. S OF E ENGLAN	ENGIN ID DIV	EERS / IS IC	ON	Boring No.). <u> </u>	Diam. (Cosing) 3/4" Steen Auq
To Ele To Ele To	evation To tal Rock evation B tal Depth re Recove	urden D op of R Drilled ottom o of Bor	ock	ring_	5.0 -5. 15.0	FeetFeetFeetFeet	Hammer Dro Casing Left Subsurface Obs. Well Drifted By Mfg. Des. Dri	D' 0' Water D NA Camb	Boring Completed 1/6/87 ord Page 4 ordse + Murdock LE 45
So	il Sampl	••	13/6		in. Dian	n. <u>—</u> In. n. <u>#</u> No. n. <u>—</u> No.		on By:	Beddop —
0.0	DEPTH	L	SIZE R	P	ER FR 10	SAMPLING A	•	,	CLASSIFICATION OF MATERIAL
7		5-1	,,	50%	2		ng 138" 1D lit spoon		little & GRAVEL, trace Silt (moist, nonplasti
2.0					3		ostem Au	nger	medium dense <u>5P</u>
5	0					amali a	s above	>	Hear brown cme SAND,
		s-2	(3 ¹)	కండే	12 14 19 31				some of GRAVEL, the
7.						uger to	10.01		dense <u>sw</u>
	ENERAL	RFM	ARKS						
Eu	levations b	ons o ench 1 sam	ns 3 mar pling	u loc K v	rformed	FD-S,(FD	ield by 1 87-20) ance with A		

Det Stomple using 1 18" 10 by Dark brown sitt on 3' long split spoon there & GRANEL, there & G	Sile	. Roug				100	Boring No.	Fore 3 of 4
3/4" 10 Hollow Stem Auger (grass) (saturated), to 13.0! 5-4 13" 70% 8 16 Boring Terminated at 15.0! Swands - No substanting. Material as insulations substanting. Material as insulations substanting.		ie:						CLASSIFICATION OF MATERIALS
3/4" ID Hollow Stem Anger (grass) (saturated, to 13.0! 5 Sample as above Sulphur odd sulphur odd 15.0 Boring Terminated at 15.0! SAND (wet, p) 16/87 Wate natural sulphur odd 16/87 Wetter Wate natural sulphur odd 17/4 Wetter Wate natural sulphur odd 18/9 Wate Natural odd 18/9 Wate			5-3	win.		2	a' long split spoon	Dark brown sit and CLAY, -
Boring Terminated at 15.0! SAND (wet, p) Very MH MF Note natural sulp Note change @ 1 SW sands - no = Petained as inst was at other Hig. Material a Sition substan			5-4	70/8	70%	5.00 8	to 13.0!	1
	16.0						1.	very MH / PEAT" Note natural sulphur odor Note change @ 14.9 to Sw sands - no sample Hetained as inspector was at other drill Hig. Material compo- sition substantiated

		nans foint		SUBSURFACE WATER OBSERVATIONS				
DATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS		
11.127	4:00	13.0	15.0	5.851	4.65'	in augers after		
112/ 0.1						in augers after boring terminated		
					-			
						·		
					·			
			·			·		



Note: As-built boxing location is the requested location.

site Roughans Point, Revere MA	Page 1 of 4 Pages
Hole No. FOR7-6 Diam. (Casing) 3/4"10 Hollow Stem	Boring Started 1/6/87
Co-ordinates: * see & sketch	Boring Completed 1/6/87
Orilled by Todd + Saativen	Report Submitted
Purpose of Exploration determine foundate proposed revolments, eluice gate	
Elevation Top of Hole 12.00 M.S.L. Total Overburden Drilled 25.00 Feet	Casing Laft in Place Feet
Elevation Top of RockM.S.L. Elevation Bottom of Nois/3.00M.S.L. Total Rock Drilled OFeet Total Depth of Nois 25.00Feet	
Core Recovered O \$ Core Recovered O Ft.; Diam.	
Soil Samplesin. DiamNo.	Weter Table Depth 13.0/
Depth Method of Drilling From To and Type of Bit Used	1 SPECK
0.0 23.0 31/4" 1D Hollow Stem Auger * 03.0 25.0 13/6" 1D Split Spoon Sampler	Borling Location Sketch Back of Page 4 Overburden Record Page 2
*with 13/8"10 split spoon sampling on 5'intervals	Rock Brilling
	hø
Prepared by THE Bell Date	Lab. Data

•	CORPS	U.S.	•	v	S		wette M.H. Poge Xot 4 Poges	
P	NEW E	NGLAN	D DI	VISI	ON	Boring No. FD87-4 Desig. B	Diam. (Casing) 314 Stem	
FIEL	D LO	GOF	TE	ST	BORIN	16 Co-ordinates: Ksee skets	And the Real Property of the last of the	
Elevat	ilon To	p of B	oring		2.0	O M.S.L. Hammer Wt. 140	Boring Started 1/6/87	
							Boring Completed 1/6/87	
						Feet Subserface Water	DotelIPogo	
•							d + Saa Hiven	
į	•					•	HF 45	
	* .					amin. inspected By:		
	•					amNo. Classification By: _ amNo. Classification By: _	1	
	PTH 2/				BLOWS PER EX- CORE RECVY	6 SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS	
		-		REC		sample using 13/8" 10 by	light brown & SAND, Hace	
	=======================================	5-1	13/4	50%	6	2' long splitspoon samplet,	C GRAVEL, Hace SILT	
	=	J-1	8	20%	• •	·	(maet, nomplastic) medium	
2.0					//	31/4" ID Hollow Stem	dense SP	
	- =					Auger to 5.0!		
	᠆=					Augering easy throughout		
	- =					boting		
					ļ			
5.0							Similar Soils-SP-with	
					3	sample as above		
		5-2	, 3"	40%	2		3" layer of darkgrey	
		, ac	8	40%) >		CLAY and SILT, trace f.	
7.0				<u> </u>	4	, s	SAND (well plactic) medium	
						Huger to 10.0'	stiff CL	
	=	1				·		
10.0] =	1						
GEN	ERAL				<u>. t </u>			
Ele	vali	ous	äs	, ou	wei	jed in the field by		
AND I	นะ	احدا	oen	ساي	mas	H near FD-5. (FD87-6	10).	
	All soil sampling performed in accordance with ASTM D1586 except as noted.							

	Sile	Dough	·				Boring No. FD87-6	Poge <u>3</u>
[DE	PTH	COH	/54	APLE	2000	64 SAMPLING AND CORING	
	10.0	1.31	W O				OPERATIONS	CLASSIFICATION OF MATERIALS
			5-3		75%	7 3 2 3	long split spoon sampler	no sample retained -
	<i>1</i> 3.0					,	3/4" Hollow Stem Auger to 15'	Coots, grass), trace & SANDS (wet, plastic) stiff CL Note natural sulphur odor, "PEAT"
	15.0					5 6	Sample as above	Dark brown mt SAND, some
	nio		5-4	3"	45%	9	Auger to 20:	ch bravel, there sict, there chay (saturated, very slightly) plastic) medium dense
	20.0	-	5-5	178	45%	17	sample as above	Dark brown conf SAND -
	23.0					13	Auger to 23.0' Sample as above	Very slightly plastics medium dense 500
	0.5		5-6	710	75,	15 16 15 12		Similar Soils with no The CLAY - SW
	25,4			· · · · · · · · · · · · · · · · · · ·			Boting Terminated at 35.0'	

•		ghans Poi	int	SUBSURFACE WATER OBSERVATIONS					
E	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS			
87	4:00	23.0'	25.01	13.01	-40'	in augers after			
						boxing terminated			
						•			
			·						
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	<u> </u>				<u> </u>				
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·	ļ	<u> </u>							
			BORING	LOCATION SK	ETCH NOT	t to Scale			
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			BH	nad Sou	ınd	<i>\</i>)			
	\87-		BH	nad Sou	ınd	Ŋ			
		612.01	BH	nad Sou	ınd	Ŋ			
			BH	nad Sou	ınd	Ŋ			
			BH	ad Sou	ınd	J			
			BH	nad Sou					
		12.0'		oad Sou	nd Read	LA A			
	ev.	12.0'	hed handim		Read	LA A			
	ev.	12.0'	ted Location- oser to To	oad Sou	Read				
	ev.	Reques Bothing	ted Location- oser to To		Read	A A			

PPO IECT N	IN D.O. # 0018
Site Roughans Point, Revere MA PROJECT N	Page 1 of 4 Pages
Hole No. FD87-7 Diam. (Casing) 3/4" Ib Hollow Sten	
Co-ordinates: * see at sketch	Boring Completed 1/7/87
Orilled by Todd + Saakinen	Report Submitted
Purpose of Exploration determine foundation	, , ,
revolments, sluice gate and ear	th beams
Elevation Top of HoleM.S.L.	Casing Laft in PlaceFeet
Total Overburden Drilled 15.0 Feet	•
Elevation Top of RockM.S.L.	
Elevation Bottom of Nois <u>- 14.6</u> M.S.L.	
Total Rock Drilled Feet	
Total Depth of Note	
Coré Recovered O	•
Core Recovered O Ft.;Dimin.	
3011 Samples / 3/8 In. Diam. 5 No.	. n
3oil SamelesIn. DianRo.	Water Table Dooth Surface
Depth He thod of Drilling From To and Type of Sit Used	1806X
0.0 13.0 314" ID Hollow Stem Auger with	Ground Mater
13/6" 10 split spoon sampling on	Boring Location Sketch
5' intervals	Overbunden Record
13.015.0 13/8" ID split spoon sampler	Task ordingPage
Propared by THBeddoe Field Data	
	La b. Da ta
sublitted by Atlantic Testing Cabs,	<i>Ud.</i>

2	-		ENGII ID DI	VEER VISI	ON	Boring No. <u>F087-7</u> Desig. <u>6</u>	Diam. (Cosing) 3/4"10 stem Auger
Total Eleva Total Eleva Total Core Core	Over but the To Rock to Be Depth Recover Recover	p of R Drilled ofform of Borred eed	ock	oring.	/5 , (- /6 /5 No. Box - In. D	M.S.L. Casing Left O' Feet Subsurface Water I	Boring Completed 1/7/87 Dotel 1Page 4 Detel 45 Beddoe Beddoe
	EPTH				CORE RECVY	6" SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
2.0'		5-1		25%	11 13 16 8	Sample using 13/8" 10 by 2' long split spoon sampler 31/4" 10 Hollow Stem Auger to 5.0: Augering easy throughout bothng.	Some will SAND, trace SHELL FRAGHENTS, trace SILT (saturated, nonplastic) medium
5.01					34	sample as above	Dark grey GW as
7.0		5-a	2180	50%	12	Auger to 10:0!	above
70.0	FRAI	REM	ARK	S:			
Ele Al	esoctions encer	ons loen 1 sam	os chr plin	sut Val K	rform	d in the field by ATL ar FD-5. (FD87-20) led in accordance with ASTM	

	Sile V	Zough	an's	Po	int			010 <u>5</u>
		(PTH		E12E	17.	200	6" SAMPLING AND CORING CLASSIFICATION OF MA	TEHIALS
	10.51		5-3A	13/6"	100%	34	Sample using 13/8" 10 by Dark grey mt SAA	D, trace
1	1010			-		15	21 long split spoon sampler SILT, trace SHEL	4 目
			5-3 <i>B</i>	12"	100%		FRAGMENTS LSA	turated,
		=		. 8	100	9	non-plastic) de	nase SP
	12.0'				$\vdash \vdash$	-1	1314" Hollow Stem Auger Dark grey conf 5	
	13.0'						to 13.0' and & 6RAUEL, -	
			1			54	sample as above sict (saturated),	
. !		=	1	. 3"		201	plastic lidense	<u> </u>
•		=	5-4	18	100%	29		
	15.0'					31	and cont SAND,	
		=	1				Boring Terminosted at 15.01, SILT (saturated,	nomplastich
		-] .				117187 very dense 6	<u>8</u>
			1					
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		ghanis Poi 087-7		SUBSURFACE WATER OBSERVATIONS					
ATE	TIME	CEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS			
/7/87	12:13	13.0'	15.0'	1.51	-3.11	in augers after			
						boring termination			
17/87	12:27	0.01	16.01	0.0'	-1.6	after augers were			
,					`.	Dulled			
				,	:				
	 	-							
		 		<u> </u>					
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	<u> </u>	<u> </u>		 					
		<u> </u>							
				ļ					
						<u> </u>			
		o Scal	below origina BORING	LOCATION SKE	тсн				
FDS	37-		16	Bound	Zeach Do	of Seawall			
			// "						

Site Roughan's Point, Revere MH	Page 1 of 4 Pages
Hole No. FD27-8 Diam. (Casing) 314"10 HollowStem	3oring Started 1/7/87
Co-ordinates: Ksee Rsketch	Boring Completed $1/7/87$
Drilled by Cambridge & Murdock	Report Submitted
Purpose of Exploration determine foundation.	•
revetments, sluice gate and ea	and beims
Elevation Top of Hole 0.80 M.S.L.	Casing Left in Place Feet
Total Overburden Drilled 25.0 Feet Elevation Top of Rock	
Elevation Bottom of NoisM.3.L. Total Rock OrilledFeet	
Total Depth of Hole 35.0 Feet Core Recovered 5	•
Core Recovered O ft.; Dimin.	
3011 Samples In. Diam No No No.	Water Table Depth D. 5'
Depth Method of Brilling From To and Type of Bit Used	1 a belox
0.0 33.0 3/4" ID Hollow Stem Auger with	Ground Water
13/6" ID Split Spoon Sampling on	Boring Location SketchPage 4
5' intervals. 23.0 25.0 13/8" ID Split Spoon Sampler	meet or HHT449Page
23.6 25.6 1976 TO SPILE SPOON SUNSPIEE	Page
	Page
	hp_
Preserved by TA Beddoc Florid Data	Lab. Data
substeed to Atlantic Testing Labs,	. Ud.

Electronic Corresponding	CORPS OF ENGINEERS NEW ENGLAND DIVISION Boring No. F187-8Desig. H. Diam. (Cosing) 34/10 stem Ruger FIELD LOG OF TEST BORING Co-ordinates: N. Sep skolck. Elevation Top of Boring 0.80 M.S.L. Hammer W1.140 Boring Started 1/7/87 Total Overburden Drilled 25.0 Feet Hammer Drop 36" Elevation Top of Rock M.S.L. Casing Left 0' Boring Completed 1/7/87 Elevation Rock Drilled 0 Feet Isabestace Water Date Page 4 Elevation Bottom of Boring 24.2 M.S.L. Obs. Well A0 Total Depth of Boring 06.0 Feet Drilled By Cambridge Hubback Core Recovered 0 % No. Boxes 0 Mfg. Des. Drill CME 45 Core Recovered 0 Ft: Diam. in. Inspected By: Beddor Soil Samples 13/8 In. Diam. 7 No. Classification By: Beddor Soil Samples In. Diam. No. Classification By:										
1	DEPTH	CORI	E/SAM SIZE	PLE PARE	BLOWS PER EXT CORE REC VY	6"SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS				
2,0			<u>w</u> 100	30%	7	Sample using 13/8" ID by 2 long split spoon samplet 81/4" ID Hollow stem auger to 5! Note bouldets in first 5.0!	Hed brown cme SAND and P GOLAVEL, trace SHELL FRAGMENTS, trace SILT (saturated, nonphetic) dense Sw				
.5.0 .le.o	-	5-2A 5-2B	3100 710	100%	4	sample as above	Dark brown SILT and CLAY, trace & SAND, Trace ORBANICS (100+5), Trace &				
7.0			ABV		/	Augento 10.0' Augening easey for remainder of boring	GRAVEL (saturated, plastic) Stiff MH "PEAT" Note sulphur coor (natural). Medium brown mf SAND, thace of GRAVEL, tracp				
E	usine All so: D1586 (ons bee il sar	as nch nolir	mai mai	K werfori	ed in the field by ATL ear FD-5. (FD87-20). med in accordance with ASTM Boring No. FD87-8	medium dense <u>SP</u>				

Sale 	Roug	han	s P	buid		Boring No.	Foge 3
	PTH PTH		/5A M	X.	Q .	" SAMPLING AND CORING DPERATIONS	CLASSIFICATION OF MATERIALS
10.0	<u> </u>			REC	<u></u>		50/c S 1/c 40 S 2D 7
12.0'		5-3		50%	7	sample using 13/8" ID by a long split spoon sampler	soils Similar to 5-2B-1
					1	314" 10 Hollowstem Auger to 15.0'	
15.01	-					sample as above	
		· 5~4	m/w	50%	14 12 65		Dark brown & SAND, little - SILT, trace & GRAVEL, Hace CLAY, trace ORDANICS (10015)
17.01						Auger to 20.01	plastic) dense SP-SM-
20.0						sample as above	urae).
	-	5-5	138	60%	3 8 9		5P-3M as above
23.0	-				. 2	Auger to 23.0'	N.A. Desame
25.		5-6	18	1 100%	1.5	4	Hed grey-blown mt SAND, Hace & GRAVEL, Hace
	_					Boring Terminated at 25.0	SILT (saturated, romp bastic) -

ite: _ loring	No: F	ghan's Po D87-8		SUBSURFA	SUBSURFACE WATER OBSERVATIONS				
ATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT.	DEPTH TO WATER	ELEVATION WATER	REMARKS			
/7/87	12:10	23.0	26.0	4.0	-3.2	in augers after			
7						boting terminated after augers were			
7/87	12:24	0.0	25.0	0.5	0.3	after augets were			
-		, .	·			pulled			
			·		:				
	 								
			 						
					 				
vote:	Depths	are in feet	below origina	l ground ,		· · · · · · · · · · · · · · · · · · ·			
N.	ot t	o Scale		LOCATION SKI	leach D	STOUES OF			
			FD87-8 Elev. 0.8	o' \	/ S.	eamol			
						1			
		12.	ach (ac			N			
F L	87-1	1	ail'						
		(N							

Top of Seamall

Note: As-built bothing location

is the requested location

Site Roughan's Point, Revere MA PROJECT NO	Page of 4 Pages						
Hole No. FD87-9 Diam. (Casing) 3/4"10 Auger							
Co-ordinates: X see X sketch	Soring Completed 1/7/87						
Orilled by Toda & Saarinen	Report Submitted						
Purpose of Exploration determine foundation revelments, sluice gate and	· · · · · · · · · · · · · · · · · · ·						
Elevation Top of Hole	Casing Left in Place Feet						
Total Overburden DrilledFeet Elevation Top of RockN.S.L.	·						
Elevation Bottom of Nois							
Total Depth of Note							
Core Recovered Ft.; Di m in. Soil Samples / 3/8 in. Di m & No.							
Soil Samplesin. DiamRo.	Water Table Depth SUNFACE						
Depth Method of Brilling From To and Type of Bit Used	I X DECX						
0.0 13.0 3/4" ID Hollow Stem Auger with	Boring Location Sketch						
5' intervals B.D 15.0 13/8' 1D Split Spoon Sampler	Overbunden RecordPage						
B.D 15:0 198 18 Split Stock College							
	Prop						
Propared by TA Beddoe	Lab Bila						
Present by TA Beddoe Flore Date Substitute by Atlantic Testing Labs,	242						

			U.S IPS OF ENGL		GINE		· · · · · · · · · · · · · · · · · · ·	Diam. (Cosing) 31/4" ID Stem			
	FIE	LD I	.0G ()F_1	EST	BOR	1	·			
	FIELD LOG OF TEST BORING Co-ordinates: New Sec sketch Elevation Top of Boring										
\vdash		PTH				BLOWS PER ER	J/W SAMPING AND CARINA				
<u>0</u>	0	2	NO.	SIZE		COAE		CLASSIFICATION OF MATERIALS			
			5-1	378	40%	13	1,	and conf shub, trace sict,			
3	0					9		trace SHELL FRAGKENTS			
		1111111111		•			814" ID Hollow Stem Auger to 6.0' Augering slightly difficult due to coarse soils	(saturated, renplastic) medium dense 600			
5.	0	긬		٠.			Samuele ac alama	California de la casa			
			5-2	17/00 17/00	35%	14 16 19	Sample as above	as above			
7.	0	=			\dashv	14	Auger to 10.0'	E			
							Augering easy for remainder of boring.				
10.	2	=	:.					F			
E	eva usin	stro	sens	35 hm	aru e	- nec	linghe field by ATL at FD-SKFD87-20)				
D15	. soi 86 e	xce	ampli pt as	ng not	perfo	rmed	in accordance with ASTM				
Tes							Boring No. FD87 - 9				

	Sile	Rough	ions	Po	ind		Boring No.	9 61 4
	10.0	EPTH	COH	-	אורב ב	CONE	6" SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
	u.s'		S-3A	\$ io	DEC 100%	19 26 47	somple using 13/8" ID by 2' long split spoon sampler	Light brown conf SAND, trace of a GRAVEL, trace SILT (web, nonplastic) very danse SP
	12.0'		s-3B		100%	14	3/4" 10 Hollow stem Auger to 13.0' Sample as above	Light blown & SAND, Hoce c GRAUEL, Hace SILT (wet, nonplastic) very dense SP
	14.0	-	5-4A 5-4B	_	 	16	Botting Terminated at 15.01,	trace SILT (saturated), ated, nonplastic) med. dense - 5D
. **							117187	cight brown of GRAVEL and emf GRAVEL, trace SILT (saturated, nonplastic) Very dense 600
								יון ייון יייון יייון יייו
		_						

		= D87-9		SUBSURFACE WATER OBSERVATIONS					
TE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS			
7/87	4:15	13.01	15.01	6.0'	-6.5'	in augers after			
,						boxing terminated			
7/87	4:30	10.01	16.01	0.0'	-1.5	after augers were			
						pulled			
				·	·				
					·				
		:							
						·			
	<u> </u>								
						·			
	Debili	are in icci	below origina	l ground					
00		o Scal		LOCATION SKE	ETCH	Simpson's Pier			
D87	+ +	305 305	20 BORING	LOCATION SKE	87-9 w1.50				
D87	+ + +	305 305 N	20 BORING 20 BORING Doguested Domno Lowtidn ONES	LOCATION SKE	87-9 w1.50				
D87	+ +	305 305 N	20 BORING 20 BORING Doguested Domno Lowtidn ONES	LOCATION SKE	87-9 w1.50				

Site Roughan's Point, Resolved to Purpose of Evaluation Date	ing)31/4" Houses stem K sketch Murdock	2. D.D.#0018 Page 1 of 4 Pages Soring Started 1/7/87 Boring Completed 1/8/87 Report Submitted x conditions for proper	
revoluents, sluice			
Elevation Top of Hole / 5 Total Overburden Drilled 25	•	Casing Laft in Place	F••t
Elevation Top of Rock Elevation Bottom of Nois Total Rock Drilled Total Depth of Nois Core Recovered Core Recovered Elevation Top of Rock Elevation Rock			
Soil Samples 13/8 In	. 01 s. <u>6</u> t o.	Water Table Depth <u>5.3'</u>	
6.0 23.0 3/4" 10 Hollow:	poon Sampling on	### ### ##############################	Bd of Pap _4
Prepared by	4 Reddoe	1	Si G
Submitted by Atla	ntic Testing Labs, Lto	<u> </u>	

		CORPS NEW E		ENGI! ID DI	VEER	ION		Boring No.	<u>FD97-10</u> Des	ig	Diam. (Cosing) 31/4"ID Stem	
622	Eleva Total Eleva Total Eleva Total Core	Over button To Rock I tion Be Depth Recover	p of B urden D p of R Drilled ottom of Bor red	oring	oring.	1. 5 25. 0 - 2 25 No. Box	3.6 ,0	M.S. L. Feet M.S. L. Feet	Hammer Wt Hammer Dr Casing Lef Subsurface Obs. Well _ Drilled By Mfg. Des. Dr inspected	J40 ² op So Water [No Cam Cam By E	Boring Completed 1/8/87	
								No.				•
		EPTH I*• a'	COR	E/SAM SIZE	IPLE DEPTH	BLOWS PER FT. COPPE REC'VY	L" \$	SAMPLING OPERAT	AND CORING	1	CLASSIFICATION OF MATERIALS	
	2.0'		5-1		15%	37	2/ 50 3/1 A1	long sp moler 4" ID H uger to	lit spoon	<u> </u>	Med. blown cm&SAND, little c& GRAVEL, thace SHELL FRAGMENTS, thace SILT (wel, nonplastic) medicem dense 500	
	5.0'		5-2	13"	90%	8 9 9 13		mple a	es abo	v ^Q	Light brown & BAND, trace & GRAVEL, trace SILT (saturated, non- plastic) medium dense SD	
	Ele	ERAL	rus c	25 5	sur	eyed	in in	the Ri	eld log A (FD87-20)	TL		
- !	Al		l sam	olin	g pe	erform			lance with	AS'IM		
⁰⁸ , 58	-	_				· · · · · · · · · · · · · · · · · · ·		Boring	No. FD87-	-10_		

	Site	Pougl	han	s P	knio	-		Boring No.	Fb87-1	10		F030 3	1 1
	DI	EPTH	1	IL/SAN		77 B 347 N	6" SAMPLI	ING AND COR	ING				
1.00	10.0	'a'	N Q	8128	-Xed			RATIONS		CLAS	SSIFICATION OF	MATERIAL	.:]
		E	 ,		REC	31	144	using 13/8	/ 1	Medi	um brown cf	GRAVEL	-1
		E	5-3	1,3"	70%			split spor	on	and	cmf SAND, +	tace SIL	
		1 =	5-5, 	8	1010	21	sampler			ŀ	unated, nonpl	•	
	12.0'	E	<u> </u>	<u> </u> '		21	1			(nse, <u>GW</u> w		3!
		Ī	1	'		1		Hollow St		1	er of soils		計
	1	1 4	1		1	1-1	Auger -	to 15.0'	+	1	5-2		3'
_	1	1 3	1	,		1							= 1
	1	=====================================	1		!	1		:	1			•	4
_]	1		'				1				3 '
	15.0'	├ ──	<u> </u>	+	 	12/2	1 Samuel	e as ab	i one	4101	Dium grey cm	duas 9.	-======================================
_		-	1.		'	31	Lavige	ر میں ۔۔۔	,	ì			1
	i	-	5-4	1 13"	8.0%	32				1	D CF GRAVEL	•	7
	į . <u>.</u>	-	4			30	1			SIL	-T (saturaled	, unplast	۳۱٫۶
	ام.تر.	-	 	+-	+	-	4	to 20.01 WV	Loro	ver	y dense SI	w with	7
		=	1				encount	ter diffi	iculty	1	layer of		\exists
	í	-	٠ ا				Attempt	flowing so	h owt	7			\neg
			4				augers	with hos ssful be	se were	CLF	Ay, trace f	SAND,	7
	•	-	1				returnin	ng tide for	aked us	1	ce ORGANICE	o Croote)	
_	20.01	, _=	j				Exploration	ons end ilr	7187		(saturated,		
	•	=	=	1		34	Exploration	ons begin i	18187	TI	MH- Note	sulphur	1 1
-		-	1,	13	4	25	Readva	nce auger	rs from		odor Cnat	tural).	1 =
		-	ี่ 	8	257	25	location	n, washo	ow augers	51	dium brown	+ GRAUE	ECI
_	29.0		1		1	16	, lusing h	lose. Say	mpleas	and	e cme saud,	Hace Sil	1
			<u> </u>				Huger +	to 23.01		(30	at, nonplasti	a) dens	<i>se</i>]
-	23.0	+	1	-	+	31	Some	leasab	ove,	E)G	p gut brown c	- P SAN	<u></u>
		-	-			34	1			1	,	·	
-		-	3-4	4 13	75%	26				l	He P. GRAVE		
	25.0		7			18	i l	•			LT (well, no	,	7
	au		=======================================					Terminati	ed at 25.0	3 VE	ery dense	- <u>5</u> w	. =
			=				118187				•		
			3	14							· · · · · · · · · · · · · · · · · · ·		=======================================
	L		<u> </u>			1	1.		:				-

Bor ing	No:	an's Point FD87-10		SUBSURFACE WATER OBSERVATIONS					
ATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS			
18/87	10:20	23.01	25.0	€.3'	- 4.8'	in augers after			
						boxing terminated			
		· 			<u>'</u>				
		<u> </u>			<u> </u>	· · · · · · · · · · · · · · · · · · ·			
				·		,			
iote:	Depths	are in feet	below original	ground	•				
Do-	t to	Scale	BORING	LOCATION SKE	<u>ETCH</u>	Simpson's /			
	E	3011 3017			87-10 ev.1.5'				
	$\neg \Psi$.	(ce-for-	LBURE	and V					
•	11		STONES	1					
STOR	11	N		ach D	To Se	p of)			
Read		N		ach D	To 5e	p of) The			
/		N		ach D	To 56	P of Pawall			
/		N		ach D	To 56	P of Pawall			

Site Roughan's Point, Revere MA Page 1 of 4 Pages Note No. FD87-11 Diam. (Casing) 3/4" ID Auger Boring Started 1/8/87 Co-ordinates: ** See ** Sketch Boring Completed 1/8/87 Drilled by Tadd & Saatinen Report Submitted Purpose of Exploration Determine Coundation conditions for Proposed revelments, sluice gate and earth berm.									
Elevation Top of Hole 4.00 M.S.L. Total Overburden Drilled 25.00 Feet Elevation Top of Rock M.S.L. Elevation Bottom of Hole 25.00 M.S.L. Total Rock Drilled Feet Total Depth of Hole 25.0 Feet Core Recovered D Ft.: Diam. In. Soil Samples 13/8 In. Diam. 6 No.	Casing Left in Place Feet								
Depth He thod of Drilling From To and Type of Bit Used 0.0 \$3.0 3'4" ID Hollow Stem Auger with 13/8" ID Split Spoon Sampling at 5.0' Intervals 33.0 35.0 13/8" ID Split Spoon Sampler Prepared by TA Beddoe	Bround Nater Section Sketch Section Page 4 Overburden Record Page Page Page Page Page Page Page Page								

	PS OF EN ENGLAND					Diam. (Cosing) 3/4 (D Stem		
FIELD	.OG OF	TEST (BORING			woden.		
Elevation Top of Boring 4.00 M.S.L. Hammer Wt. 140 Boring Started 1887 Total Overburden Drilled 25.00 Feet Hammer Drop 30" Elevation Top of Rock M.S.L. Casing Left D' Boring Completed 1887 Total Rock Drilled O Feet Subsentace Water Date Page 4 Elevation Bottom of Boring 25.00 Feet Drilled By Todd + Saahkem Core Recovered O % No. Boxes O Mfg. Des. Drill CHE 45 Core Recovered O Ft: Diam. In. Inspected By: Reddoe Soil Samples In. Diam. No. Classification By: Reddoe Soil Samples In. Diam. No. Classification By:								
DEPTH	CORE/	SAMPLE	BLOWS PER ET 6" CORE RECVY	SAMPLING AND COR OPERATIONS	ING	CLASSIFICATION OF MATERIALS		
2.0'		3" 45%	3 6	imple using 13/e y 2' long split impler,		Hed. grey cmt SAND, some P. GRAVEL, HACE SHELL FRAGMENTS, Hace SILT		
-			Δ , Δ ,	14" ID Hollow 5 inger to 5,0" ingering easy toughout bor		(wet nonplastic) medium dense <u>S</u> W		
7.0'	5-2	3 50%	11	ample as ab	o ove	Med. brown me SAND, some ce GRAVEL, toane SILT (saturated, nonpostic		
-			A	ruger to 10.0'		medium dense SP		
Elevati Usiv	y bene	hmati	c near	the field ky in the field ky in accordance wi)			

Sile	R	ugha	ws.	Poi	nt	Boring No.	Poge _9
100'	[P]H	COH!	E/SAI		10 40 10 47 10 47 10 47	64 SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
(a.o'		5-3	7/8	100g	19 29 34 51	by 21 long split spoon sampler	some of GRAVEL, Hace SILT (wet, nonplastic)
					•	314"10 Hollow Stem Auget to 15:0', noting boulders from 10'-13', Flowing sonds at 15', clean out augens with hose.	very dense <u>sw</u>
15.0'		5-4	138	100%	14 10 7 23		Med. brown me SAND, little cf obthuEL, trace SILT Coaturated, ramplastic
				,		Auger to 20.01	med. dense-50
20.0		5-5	3/8	80%	20 24 8 9		SP as above
23.0		3-4	378	80%	7776	- sample as above	Med. brown ml SAND, Have SILT (saturated, nonplastic) medium danse SP
	_					Boring terminated at 25.0'	

	····	FD87-11	<u>~</u>	SUBSURFACE WATER OBSERVATIONS				
ATE	TIME	DEPTH-BOT. Of Casing	DEPTH-BCT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS		
8/87	11:40	23,0	25.0	6.5'	-2.5	in angers after		
						in angers after boring terminated		
					<u>.</u>			
			4.					
					·			
								
	 		 					
<u> </u>	 		 					
	-	 			<u> </u>			
	 	ļ		<u> </u>				
ote: Dot		s are in feet	below origina BORING	I ground	ETGH			
		Scall		LOCATION SKI		Simpson's Pier		
		Scall	BORING	LOCATION SKI		Simpson's Piet -> Eleu. 4.00' [30']		
		Scall	BORING d Soun	LOCATION SKI	F	Elev. 4.00' (30')		
. <u></u>		Scall	BORING d Soun	LOCATION SKI	F	Elev. 4.00' 130'		
Pot	+0	Scall	BORING d Soun	LOCATION SKI	F	Elev. 4.00' 130'		
. <u></u>	+0	Scall	BORING d Soun	LOCATION SKI	F	Elev. 4.00' (30')		
Dot	+o	Scale Broa	BORING d Soun	LOCATION SKI	F	Elev. 4.00' 130'		
Dot	+0	Scale Broa	BORING d Soun	LOCATION SKI	F	Elev. 4.00' 130'		
Dot	+o	Scale Broa	BORING d Soun	LOCATION SKI	F	Elev. 4.00' 130'		
Dot	+o	Scale Broa	BORING d Soun	LOCATION SKI	F	Elev. 4.00' 130'		
Dot	+o	Scale Broa	BORING d Soun	LOCATION SKI	F	Elev. 4.00' 130'		
Dot	+o	Scale Broa	BORING d Soun	LOCATION SKI	F	Elev. 4.00' 130'		
Dot	+o	Scale Broa	BORING d Soun	LOCATION SKI	F	Elev. 4.00' 130'		

PROJECT NO Site Doughan's Point, Revere MA Hollow Stem Hole No. +D87-12 Diam. (Casing) 3/4"/D Auger Co-ordinates: ** see ** ** Sketch Drilled by Todd & Saarinen	Page 1 of $\underline{\mathcal{A}}$ Pages Boring Started $\underline{1/8/87}$ Boring Completed $\underline{1/8/87}$ Report Submitted
Purpose of Exploration determine foundation of revetments, sluice gate and earth	•
Elevation Top of Hole	Casing Left in Place Feet Water Table Depth
Property of State Supering Labs. Lt. Depth Substitute by Atlantic Testing Labs. Lt.	Bround Stater

U. S. ARMY Sile Roughan's Point Revere MA Page XOI 4 Pages CORPS OF ENGINEERS Boring No. FD8 7-12 Desig. M Diam. (Casing) 31/4"10 Strum NEW ENGLAND DIVISION Co-ordinates: SX see sketch FIELD LOG OF TEST BORING Hammer Wt. 140 M.S. L. Boring Started 1/8/87 1,00 Elevation Top of Boring Total Overburden Drilled 15.00 Hammer Drop 30" Feet Boring Completed 11887 Casing Left _ D' Elevation Top of Rock_ M.S.L. Total Rock Drilled Subserface Water Date Elevation Bottom of Boring -14.0M.S.L. | Obs. Well NO Drilled By Todd + Saatinen 15.0 Feet Total Depth of Boring___ Mfg. Des. Drill CME 45 Core Recovered ___ Diam. ___ in. Inspected By: Beddoe Soll Samples 13/8 In. Diam. 6 No. Classification By: Beddoe Soil Samples _ __in. Diam. ___ No. Classification By: ____ CORE/SAMPLE BLOWS DEPTH 64SAMPLING AND CORING SIZE PANGE RESTY CLASSIFICATION OF MATERIALS 1001 **OPERATIONS** NO. 0.01 sample using 13/8" 10 Hed, grey-brown cf 4 by 21 long split 11 GRAVEL and conf SAND. 13" 203 5-1 spoon samplet 13 trace SILT (saturated, 18 'میھ 31/4" ID Hollow Stem nonplastic) medium: Auger to 5:0' noting cobbles and boulders dense GW from surface to 5.0! Go as above. No somple retained as 5.01 inspector was at sample as above 2 other of Il Hig. Composition confirmed by diller 5-213" 20% 3" Dark brown SILT, 7.01 trace CLAY, trace & Auger to 10.0' SAND, HOLE ORGANICS Augering easy for remainder of (wood chips) (saturated, bothing. very slightly plastic) med. STIPP ML in 2" Med grey SILT

GENERAL REMARKS

Elevations as surveyed in the field by ATL using benchmark near FD-5 (FD87-20).

All soil sampling performed in accordance with ASTM D1586 except as noted.

(sodurated, plastic) med still

and CLAY, trace me

SAND, trace & GRAVEL

trace ORGANICS (voots)

	5 (1 e	Pou	eghan	s }	bint		Boring No. FD87-12 01 4
		EPTH 1.2′	COH		417. E	(0.5°)	6" SAMPLING AND CORING CLASSIFICATION OF MATERIALS
	1.01	1111	5-3A		75%	2 -	Sample using 13/8" ID Dark grey 3/LT and CLAY, I buy 2' long split spoon some me SAND, trace OR-
	18.0'		5-3B	W/B	75%	23	Sampler GADICS (sed wood chips, I mosts), trace P. SEAVEL, I
	13.0'					•	31/4" 1D Hollow Stem Auger to 13.0' trace SHELL FRACHTUS = Sample as above (continuated, plastic) soft
	14.0 '		5-4A	13"	50%	8 13	Change at 11,01 to
	15.0		5-4B	13"	50%	23	Boing Terminated at 15.0' trace mp SAND (wet,
							Boring Terminated at 15.0' 1/2/87. back brown of SAND
	٠	-					little 31LT, trace & GRAVEL, trace CLAY
-							(saturated, very slightly phstic) med. deuso SD-SM change @ 14.0' to Medium
	٠.						green-grey with rust — mottles silt, trace fine—
							SAND (moist, nonplastic) dense ML
		_					
		_			-		

		ighan's P FD87-1		SUBSURFACE WATER OBSERVATIONS			
ATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS	
18/87	4:35	13.0	15.0	1.5	-0.5	in augers after	
						in augers after horing terminated	
. 							
			·				
					· · · · · · · · · · · · · · · · · · ·		
					·		
	ļ				<u> </u>		
	<u></u>				<u> </u>		
1016:	Depths	are in teet	below original	grouna	#		
No	+ +e	o Scale	BORING .	LOCATION SKE	ETCH		
	sson's	A			Note:	as-built boring	
Piel			_ 0		loc	ation is the ouested location.	
	550	NES V	Top of Seawall		25	FD87-12 Eleo. 1.00'	

Existing M.D.C.)
Pumping Station

Reach D

Reach E

Site Koughan's Paint, Perene MA Hole No. ED87-13 Diam. (Casing) 81/4" ID Hollow Hern Co-ordinates: X see X sketch	Boring Completed 1/8/87
Drilled by Combridge & Murdock	Report Submitted
Purpose of Exploration determine foundation rever ments, sluice gate and east	· · · · · · · · · · · · · · · · · · ·
Elevation Top of Hole	Casing Laft in Place O Feet Water Table Depth 5.5'
Depth Nethod of Drilling From To and Type of Bit Used AD 13.D 8/4"ID HONOW Stern flugger in the 13/8"ID Split Spoon Sampling at 5.D' Intervals 13.0 15.0 13/8" ID Split Spoon Sampler Present by TABEDORE Substitut by Atlantic Testing Labs.	Bround Nater

Total (Elevat Total Elevat Total Core R Core R Soil S	lon To Overbu ion To Rack D ion Ba Depth ecover	p of B rden D p of R Prilled, ittom c of Bor ed	oring rille ock of Bo ing c	d _ld	0.90 5.0 -14 15. 10. Box	M.S.L. Hammer Wt. HO Feet Hammer Drop 30 M.S.L. Casing Left O Feet Subsurface Water	# Boring Started 1/8/87 , Boring Completed 1/8/87 Date Page 4 Movides + Murdock ME 45 Beddoe Beddoe
DE	PTH	CORE	E/SAM SIZE	PLE E	ER ET	G'SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
₽.o¹		5-1		REC	4	sample using 13/0" 1D by 21 long split spoon sampler	Medigrey brown cont sand, some & OTEAUEZ, trace SHELL FRAGHENTS, toace
			-			31/4" 10 Hollow Stem Auger to 5.0; Augering easy throughout boring	silt (wet, nonplastic) medium dense <u>SW</u>
7.0'		5-2	198	50%	9633	sample as above	500 as above - saturated
						Auger to 10.0' Note boulders from 7.5' to 9.5!	
Eleva L All	reina	s a ber	s e chr ling	vor.	Eormi Eormi	In the field by ATL ear Fb-3. (FD87-20) ed in accordance with ASTM	

	Sile	. R	ougho	ws	Pol	nt	Boring	10 FD87-	13 81 4
	·	E P T H	C OH		41°C E 12.91 H 14.00 C		"SAMPLING AND CO	DRING	CLASSIFICATION OF MATERIALS
	<i>∫∂.</i> D¹		5-3		2EC 80%	31 26 28 19	sample using 1 21 long split samplet,		Hace of GOLAVEL, trace
	13.0'						314" 1D Hollow Auger to 13,1 Sample as a	01	Dark grey conf SAND, Little
	150'		5-4	134	30%	```	<i>5</i> - 1		& SPAVEL, trace SILT
		-				•	Boting Terminate 118187	ng at 12:01	dense <u>510</u>
, •			,						- International
٠									
						•		·	
	← .								

	No:	han's Pol FD87-13		SUBSURFACE WATER OBSERVATIONS				
ATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS		
ele7	4:45	13.0'	15.0'	5.5'	-4.6'	in augers after		
						boning terminated		
					<u> </u>			
					<u> </u>			
	<u> </u>	<u> </u>						
		ļ						
	<u> </u>				 			
	<u> </u>	<u> </u>						
<u></u> -	<u> </u>							
ote:	Depth	s are in feet	below origina	l ground				
NOT		Scale		LOCATION SK		Simpson's Pier		
	E	3 road =				FD87-13 Elev. 0,90'		
310		shood =	<u> </u>	3	Top o Seaw	Elev. 0,90'		
. •	WES)	N		ach D	Top o Seaw	Elev. 0,90'		
. •	MES	N		ach D	Top o Seaw	Elev. 0,90'		
. •	MES	N		ach D	Top o Seaw	Elev. 0,90'		
Rec	WES)		STON	ach D	S <i>e</i> aw	Elev. 0,90'		

Site Roughan's Point, Revere MA Hole No. FD87-14 Diam. (Casing) 314" ID Augers Co-ordinates: K see K sketch Drillad by Cambridge & Mundock Purpose of Exploration determine foundation	· ·
Total Overburden Drilled 37.0 feet	Casing Left in Place Feet
Elevation Top of Rock	Water Table Depth 8:0'
pepth Method of Drilling From To and Type of Bit Used 0.0 35.0 3"14" Hellow Stem Auger with 13/8" ID Split Spoon Sampling at 5' intervals 35.0 37.0 /3/8" ID Split Spoon Sampler	### Bround Water Brokent Page 5 Boring Location Sketch Brokent Page 5 Overburden Record Page 5 Rock Belling Page 7 Page 7 Page 7
Preserved by TABeddop Field Data Subsited by Atlantic Testing Labs, 1	Lab Data

FIEL Eleval Total Eleval Total Eleval	CORPS NEW E D LC High To Overbution To Rock i Rock i Depth	p of B irden D p of R Drilled of Bor	TE oring orlile ock of Bo	ST E	5.4 5.4 7.0 0 - 31	Boring No. FD87-14 Desig. Walketch Co-ordinates: Naketch M.S.L. Hammer Wt. 140* Feet Hammer Drop 30' M.S.L. Casing Left 0' Feet Subsurface Water I	Boring Started 1/14/87 Boring Completed 1/14/87 Dated Page 5 Abridge + Hurdock
					,	amin. inspected By: am!_No. Classification By: _	· · · · · · · · · · · · · · · · · · ·
Soil !	Sample	•		-	-In. Di	amNo. Classification By: _	
0.0'	PTH	CORI	E/SAM SIZE		ER ET	6"SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
2.0'		S-1	w]w	50%	3000	sampler,	f. SAND, trace ORGANICS (woodchips, roots) (moist,
						3/4" ID Hollow Stem Auger to 5.0' Augering easy throughout boting.	nonplastic medium ML (Material had been previously disturbed by buildozet)
5,0'		5-2	710	50%	4	Sample as above	Medium grey-brown ML as above, with trace of GRAVEL
7.01	-				48	Auger to 10.01	(Material not previous ly disturbed by bull-dozen)
18.0'	-						
Elea	using 16 for the b	ns a g ben 1.0' c	s s chr deep	nation	than	in the field by ATL Lat FD-5. (FD87-20) In requested to compensate Toaction which elevated See Note: Dage 4. Boring No. FD87-14	Note: All soil sompling per formed in accordance with ASTM DISBLE except as noted.

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	Sile	- Po	ugho	M5	Poi	nt	Boring No. FD87-1	4 Poge 3
	·	PTH 1.01			17.E	O W O	G"SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
					100%	202	Sample using 13/8" ID by 21 long splitspoon sampler,	Hedium grey SILT, some CLAGO HOLE SHELL FRAGMENTS,
	18.01					3	31/4" ID Hollow Stem Auger to 15,0'	trace & SAND (wet, mod.] plastic) soft MH
	15.0'					3	Sample as above	MH as above
	17.0'		s-4	138"	100%	2 2 3	Auger to 20.0'	
(
	20.0	-	5-5A	24	 	8	Sample as above	Medium grey \$ SAND, trace SILT (saturated, nonplastic)
	22.0					5	Auger to 25.01	change to softer consistancy during drilling
	25.0	5			11	2	Sample as above	Soils Similar to 5-3 MH Soils Similar to 5-5B SP Medium grey cmf SAND and & GRAVEL, trace
	24.5 24.6 27.0):	5-61 5-61	3 13/8	100%	5		SILT Landurated, nonplastic)

	5110	. Ro	ughan	ns S	Poir	લ	Boring No.	14 Pope 24
		ГРТН *•2/	COH	1/5A A	ATTLE PARTY PARTY	200	6" SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
er e					REC		31/4"ID Hollow Stem Auger to 30.01	
	30.0'			-"		15	Sample using 13/8" 10 by 21 long split spoon	Hedrum grey ene SAND,
	32.0°	-	5-7	13"	90%	7 6	samplet.	SILT (saturated, rangiastic)
		-					Auger to 35.0'	medium dense sw
	35.0					16	sample as above	sw as above
	37.0		5-8	38	100%	7 16		
							Boring Terminated at 37.01 1/14/87 Note: BORNA location ha	Discon regraded by
							Hees and oleans	d a toad to the
						•	at the booking (ade was approximately than initial grade ocation. No soil only bushes and
			11111				thees with u would have k	shatever topsoil that
		_		*				

Page 50f 5

Boring No. FD87-14

		ham's Poir ED87-14	4	SUBSURFACE WATER OBSERVATIONS			
DATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS	
114/87	12:45	35.0	37.0	8.0	27.0	in augers after	
						on augers after boring terminated	
					\(\frac{\tau}{1}\)		
·							
	ļ		·				
	-						
							
No.	t to	Scale FD	87-14	LOCATION SKI	ETCH	Devere &	
		Ele	2 v. 5.40 _		, ,	1 9 19	
		Ele crete utment —	Requested Boring	15'		Lax to deach	

PROJECT NO Site Roughan's Point, Revere, MH Hole No. F187-15 Diam. (Casing) 4" Co-ordinates: K see & sketch Drilled by Cambridge & Burnham Purpose of Exploration defermine foundation revelopments, sluice gote and e	· · · · · · · · · · · · · · · · · · ·
Elevation Top of Hole 7.70 M.S.L. Total Overburden Drilled 54.0 Feet Elevation Top of Rock M.S.L. Elevation Bottom of Hole 40.3 M.S.L. Total Rock Drilled Feet Total Depth of Hole 54.0 Feet Core Recovered 5 Core Recovered 5 Core Recovered 0 ft.: Diam. In. Soil Samples 3 In. Diam. / No.	Casing Left in Place O Feet Water Table Depth 8:0'
Depth From To and Type of Bit Used O.D. 5.0 + back back hoe S. D. 10.0 3/4" ID Hollow Stern Auger 10.0 30:0 4" spun-in casing deaned out by 37/8" OD roller bit 30.0 52.0 37/8" OD roller bit in open hole 52.0 54.0 13/8" ID split spean sampler *includes samples taken every 5" Or less using either 13/8" ID split spea Presend by TABEDDOE Field Dela Substitut by Atlantic Testing Labs. L	Lab Data

	LD LC												
						70 M.S.L. Hammer W1. 140 [±] D Feet Hammer Drop 30	Boring Started //12/87						
I						M.S.L. Casing Left 0'	Boring Completed 2/8/87						
	Elevation Top of Rock M.S.L. Casing Left O' Borring Completed Carlot Completed Carlot Casing Left O' Borring Casing Casi												
Eleva	Elevation Bottom of Boring -46.3 M.S.L. Obs. Well NO												
1	Total Depth of Boring 54.0 Feet Drilled By Cambridge & Burkham												
ł .					•	es O Mfg. Des. Drill Ch							
f						amin. inspected By:F							
						am. <u>14</u> No. Classification By: _ am. <u>1</u> No. Classification By: _							
	·				· 	am No. Classification By: _							
—	EPTH		E/SAM SIZE		BLOWS PER FT. CORE	SAMPLING AND CORING	CLASSIFICATION OF MATERIAL						
0.0	1" 2'	NO.	SIZE	RANGE	RECVY	OPERATIONS							
	=					Five feet of bouldas	· .						
	\exists					removed by subcon-							
		! !				tracted track	·						
	=					backhoe	Boulders (Hiprop)						
	\exists		·				Domosers (Hhat)						
	=				·		ifes to 10 ft3 in size; interstitial						
							size; interstitial						
				}			material - ait.						
						Explorations end 1/12/87	·						
20	=				3	Explorations begin 1/20/87	Hedium brown cmf SAN						
	=				10	Sample using 13/8" ID by	some if GRAVEL, Hace						
	=	5-1	13"	15%	4	21 long split spoon	The state of the s						
7.0					20	sampler	SHELL FRAGMENTS,						
1	_	•	T			31/4" ID Hollow Stem	Hace SILT (wet, non-						
	=					auger to 10.0'	plastic) medium dans						
	_	1				Augering easy.	Production of the						
	=	}	}		İ		510						
	-	1											
10.0	=	}											
GEN	ERAL	REM	ARK	5:									
Ele	s action		a 20	dor	mine -L-E	d in the field by ATL using (FD87-20)							
1													

	11/2					1 11 1 1 1		
	Sile			•			Boring No. 518	Po 30 3
	Bor	مصاوم	ns \	-oiu	<i>K</i>		FD87-15	101-8
	D	EPTH		/SA 1	1	M 8 LJ-1	6" SAMPLING AND CORING	
Ī	10.0	1.21	Nα	812 E	T Z	£ 7.	DPERATIONS	CLASSIFICATION OF MATERIALS
	10.0				ZEC		5- 0- 115/105 (3/5// 15.1	4100
1		\exists				4	Sample using 13/6" 10 loy 21/ong split spoon sam-	meature great instance around
	.]		5-a	13"	25%	4	plet.	Plecks SILT, little OR-
		\exists	5-d	18	0/0	11	Demove 3'4" ID hollow	<u> </u>
.						7	stem augers	GADICS (unidentifiable)
	13.0					~	Explorations end 1/20/87	
			.'				Explorations begin 1/29/87	trace CLAY (wet, very]
							spin 4" 1D casing to 15! Material easy to pene-	sticket doctor medium -
			•				thate to 30.0!	Sugary plastic stitle
	,	7	* * *				-71-4	ML Note sulphur odor -
	,				•		od roller bit.	
	. !					*.		(natural)
	10,0				-	 	Sam On an alama	
.	. i				I	5	Sample as above	HED. GLEY CLAY, Some SILT,
	; [.34	1, 2	2		, , , , , , , , , , , , , , , , , , , ,
			5-3	13"	45%	4		little me SAND, trace &
						4		7
	17.0		· · · · · ·		 	-/-	Explorations end 1/29/87 Explorations begin 2/3/87	GRAVEL (sochwasted, plas-
	ĺ	_						tic) stiff CL contaminant
							Spin casing to 19,5	Mediquey SILT and CLAY
		_			1		wash out	11 " "]
٠		_					waste but	Hace cme SAND (sat,)
	19.2			ļ. <u>.</u>	 	ļ	أمما في المراجع	Polastic) stiff MF
_	19.7	<u> </u>	5-4A	13"	80%	8	Attempt an undisturbed sample (see page 6)	
			5-4B	3"	80%	7		Med grey/ brown SILT, 11+HE
	20.7	-	3-76	18	001	11	Sample by split spoon as above at same	CLAY (moist, slightly
	21.2		5-40	- 130	80%	2 11	elevation.	plastic) stipp ML
	01,0	 	1	1.	1			Soils similar to 5-4B-
			1					with trace & SAND,
		=]				Spin casing to 24.0'	
			} .				note change in material	<u> M-</u>
			1			1.	consistency at 21.5"	
		_	1					. =
		-	1				Explanations end 2/3/87 AM	
			1			1	Explorations begin 218/87 PM	
	25.0	:	3		1		Advance 378 voller bit to	
			-			10	Sample using split spoon as	light brown SILT and CLAY
			₫ .	21	15%		The second Control of the Control of	Hittle conf SAND (sat
		_	s-5	댾	10 "		no recovery. Second outemp	all the same of sair,
			#			18	recoperu-	plastic) stiff ML -
÷	27.0	-	1					The state of the s

Clean out using 3% ob page 3 toller bit toller bit toller bit toller bit toller bit toller bit toller bit to 35 long split spoon 30.0'		Sile	. Po	ugha	W.6	Por	wt	Boring No.	-13 Poge 4
300 Spin 4" casing to 30! See material description clean out using 3%" ob. sage 3 total the bit sage 4 total the bit sage 5 total the bit sage 6 total		DI	EPTH	COR	L/SAI	MPLE	000 wo.	AU SAMPLING AND CORING	
Jano Casing to 30. "OD. hage 3 Jano Clean out using 376" OD. hage 3 Jano Clean out using 376" ID buy using grey crown silt, Jano Sample using 13/6" ID buy using grey the count of somple. Jano Clean out using 376" ID buy using grey the count of somple. Jano Clean out using 376" ID buy using grey the count of somple. Jano Clean out using 376" ID buy using grey the count of somple as above to the least of leave of petto. Jano Clean out using 376" ID buy using grey the count of somple as above to the least of leave and soft of least of leave and soft bless of cleaned contamination. Jano Cleaned Strong Str	-	27.0'	01	NO.	1120		: XX		CLASSIFICATION OF MATERIALS
30.0 30.0 35.0 36.0 37.0 38.0]	1	1	REC		Spin 4" casing to 30!	see moterial description
30.00 25 sample using 13/8" 1D by Light grey brown silt, 31.00 31 long split spoon With elay, trace of SHID Caturated, slightly 12 reproduces and sight PH Explorations begin of 1/1/2 AM Advance 3% roller bit to 35% Haterial difficults and soft bleds off site and soft bleds off site and soft bleds off site and soft bleds off site and soft bleds off site and soft bleds off site and soft bleds off site and soft bleds off site and soft bleds off site and soft bleds off site and soft bleds off site and soft bleds off site and soft bleds off site and soft bleds of lawer oilt. Ugud grey CLAY, constit to 40.1 Note odor of petioleum product (efficite contaminant) // igut grey CLAY, some sit, trace off sout to 40.0 Sample as above Soil Similar to 5-16 Explorations begin 5/4/87 PM However toller bit to 45% Hoderial cost Note petioleum addot off similar to 5-84 to 45% Hoderial cost Note petioleum addot								Clean out using 3 % 0.0.	10000
13.0' 33.0' 33.0' Explorations and sister PH Explorations begin styles AM Advance 3'8" roller bit to 35.0' 35.0' 35.0' 35.0' 35.0' 35.0' 35.0' 35.0' 35.0' 35.0' 35.0' 35.0' 35.0' 36.0' 37.0' 37.0' 38.0' 39.0' 30.			, =====================================	ļ .!	1			TOTIEF BIT	
13.0' 33.0' 33.0' 5-6 18 156 47 Explorations and sister PH Explorations and sister PH Explorations begin styles AM Advance 3'8' roller bit to 35.0' 35.0' 35.0' 35.0' 35.0' 35.0' 35.0' 36.0' 37.0' 38.0' 38.0' 39.0' 30.	, }		=====================================	∤ . !	1	1 . 1			
13.0' 33.0' 33.0' Explorations and als/a7 PH Explorations and als/a7 PH Explorations begin apuls? AM Advance 3'8" roller bit to 36.0' 35.0' 35.0' 35.0' 35.0' 35.0' 36.0' 37.0' 38.0' 38.0' 39.0' 30.0' 3				1 . '		1			
13.0' 33.0' 33.0' Explorations and als/a7 PH Explorations and als/a7 PH Explorations begin apuls? AM Advance 3'8" roller bit to 36.0' 35.0' 35.0' 35.0' 35.0' 35.0' 36.0' 37.0' 38.0' 38.0' 39.0' 30.0' 3	.			1	1	'			1
13.0' 33.0' 33.0' Explorations and als/a7 PH Explorations and als/a7 PH Explorations begin apuls? AM Advance 3'8" roller bit to 36.0' 35.0' 35.0' 35.0' 35.0' 35.0' 36.0' 37.0' 38.0' 38.0' 39.0' 30.0' 3		30.0	1 7	$\{ \cdot \cdot \cdot \}$		1 1		13/6"10 64	1
13.0' 33.0' 33.0' Explorations and als/a7 PH Explorations and als/a7 PH Explorations begin apuls? AM Advance 3'8" roller bit to 36.0' 35.0' 35.0' 35.0' 35.0' 35.0' 36.0' 37.0' 38.0' 38.0' 39.0' 30.0' 3							25	sample using	light grey-brown silt,
35.0' 37 Explorations and states PM Explorations begin states at the 16th 16th 16th 16th 16th 16th 16th 16th			1 7	1	1 - 11	ار ا	1	10 10 mg	
550 (saturated, slightly blastic) hand ML Explorations begin styls 1 AM plastic) hand ML phones 35° roller bit with 10" layer SILT - to 35°. Hoteral difficult to penotiate 10 400 Dote ador of petro-leum contamination from off-site and 50°H bloks of clayer 31H. 50 Sample as above little cmf SADD, trace—37.0" 37.0" Advance roller bit hand CL Note ador—40°L satisfies contaminant—50°L satisfies co			-	15-6	113	15%	7	sample.	little CLAY, trace &
Explorations end 3/3/27 PM Explorations begin 3/4/27 PM the plant of the thirty to 36: Hoteland difficult 10" layer SILT— to 36: Hoteland difficult with 10" layer SILT— cult to penotiate to 400 Dote ador of petro- leum contamination from off-site and soft blebs of clayer silt. Light grey CLAY, some silt to 40: Advance relier bit to 40: Light grey CLAY, some silt to 40: 10.0 Advance relier bit to 40: Light grey CLAY, some silt (officite contaminant) Light grey CLAY, Light grey CLAY, Light grey CLAY, Some silt, trace f. SANT (sat., plastic) is tiff CL bleb no ador. 3-28 13" 1003 7 His S-28 13" 1003 8 Explorations end 3/4/27 PM Explorations begin 3/4/87 PM Howard Poller lot 1 soils similar to 5-24 Howard Poller lot 1 soils similar to 5-24 to 45: Material easy be constructed to 46.5: Note pettoleum ador		11 1		<u> </u>		1	42		SHND (saturated, stightly)
Explorations begin 3/4/87 AM Advance 3% rolle + 614 to 36! Moterial difficately 400 Note ador of petro- cult to penatiately 400 Note ador of petro- leum contamination from off-site and soft blobs of-clayey site. Light gray CLAY, somesint to 40! Advance roller bit to 40! Sample as above 10.0 Sample as above Some site, trace e save Some site, trace e save Sample as above Some site, trace e save Light gray CLAY, Li		30.01					27	Explorations end 3/3/87 PM	1
to 35! Hoteral diff: cult to penetrated 400 Note ador of petro- leum contamination from off-site and soft blobs of-site and soft blobs o	.		_	}				Explorations begin 2/4/87 AM	plastic) hard ML
15.00 15			-	} •				Advance 3% roller bit	with 1/8" layor SILT -]
Sample as above See Automorphism Sample as above See Automorphism				}				The state of the s	
35.0' 35.0' 35.0' 36.0' 37.0' 37.0' 37.0' 37.0' 37.0' 37.0' 37.0' 37.0' 37.0' 37.0' 37.0' 37.0' 37.0' 37.0' 37.0' 38.0' Advance roller bit to 40.! Whand CL Note odor of petholeum product (officite contaminant) / Light grey CLAY, Jomes Silt, thace f. SAND (sat., plastic) stiff CL Wist 42.0 37.0' 41.5 42.0 38.0' Explorations and s/4/27 AH Soils Similar to 5-04 Howance roller bit to 45.' Haterial easy Note petholeum odor Note petholeum odor				}				cult to penetrateto 40.0	Note odor of petro-
35.0' = 50 Sample as above light grey CLAY, some SILT little emf SAND, trace 37.0' = 50 Advance roller bit to 40.' hard CL Note ador of petroleum product (offsite contaminant) Light grey CLAY, some SILT, trace R. SAND (sat., plastic) stiff CL When a dor. 40.0 = 5.2A \frac{3}{6} 100% 7 7 Csat., plastic) stiff CL When a dor. 41.5 = 5.2B \frac{3}{6} 100% 8 Explorations end s/4/87 PM with 2" layer of thousance roller bit soils similar to 5.0 B to genetione to 410.5! Note petroleum adar				}					leum contamination from
35.0' = 50 Sample as above light grey CLAY, some SILT little emf SAND, trace 37.0' = 50 Advance roller bit to 40.' hard CL Note ador of petroleum product (offsite contaminant) Light grey CLAY, some SILT, trace R. SAND (sat., plastic) stiff CL When a dor. 40.0 = 5.2A \frac{3}{6} 100% 7 7 Csat., plastic) stiff CL When a dor. 41.5 = 5.2B \frac{3}{6} 100% 8 Explorations end s/4/87 PM with 2" layer of thousance roller bit soils similar to 5.0 B to genetione to 410.5! Note petroleum adar	1	į į	_	1					- Pleite and - Rt bloke -
137.0' 37.0' 37.0' 37.0' Advance roller bit 40.0 40.0 40.0 Light grey CLAY, somesict Collection product (officite contaminant) Light grey CLAY,	.	2501	-	1					1
137.0' 37.0' 37.0' 37.0' Advance roller bit 40.0 Advance roller bit 40.0 Advance roller bit 40.0 Advance roller bit 40.0 Advance roller bit 40.0 Advance roller bit 40.0 Advance roller bit 40.0 Advance roller bit 40.0 Advance roller bit 40.0 Advance roller bit 40.0 Advance roller bit 41.5 Advance roller bit 41.5 Advance roller bit 42.0 Advance roller bit 42.0 Advance roller bit 42.0 Advance roller bit 42.0 Advance roller bit 42.0 Advance roller bit 42.0 Advance roller bit 42.0 Advance roller bit 42.0 Advance roller bit 42.0 Advance roller bit 42.0 Advance roller bit 43.0 Advance roller bit 44.5 Advance roller bit 45. Haterial easy 45. Hoterial easy 45. Hoterial easy 45. Hoterial potentions oder	İ	20,0	-	 	1	+	50	sample as above	Link Grey CLAY, some SILT.
137.0' = 50 Advance relier bit Le 40! Le 40	.	İ	=	4			ميا		
Advance roller bit lead, plastic to 40! However roller bit lead, plastic late, plasti		ĺ		15-7	13	25%			THE SAPE, HACE
Advance roller bit C. Giravel (sat., plastic) to 40! hand CL Note odor of petroleum product (officite contaminant) / Light grey CLAY, John Some Silt, trace & SAND (sat., plastic) stiff CL 11.5 12.0 S-8B 13" 1002 8 Explorations and 2/4/27 AH Soils Similar to 5-16 Advance roller bit to 45! Naterial easil to cenetrale to 46.5! Note petroleum ador		į] =	1			57		
However House of the Hold of petroleum product of petroleum product (offsite contaminant) Light grey CLAY, Light grey CLAY, Some Silt, trace & SAND (sat, plastic) stiff CL Mode no ador. 10.0 5-88 13" 1002 8 Explorations end 2/4/87 AM Explorations begin 2/4/87 PM with 2" layer of Advance roller with 50 1/5 similar to 5-84 to 45'. Naternal easy Note petroleum adort to penatrale to 46.5!		37,01		<u> </u>			50		lo commen lent alacted
of petroleum product (offsite conteminant) Light grey CLAY, Light grey CLAY, Some Silt, trace R. SAND Some Silt, trace R. SAND Some sold, plastic) stiff CL When no ador. S-88 13" 1002 8 Explorations and 2/4/87 AH Soils Similar to 5-16 Explorations begin 2/4/87 PH with 2" layer of Advance roller bit soils similar to 5-84 to 45'. Material easy to perettable to 46.5! Note petroleum ador			=	3	T	T		Advance roller bit	E Great Cour, prosing
of pettoleum product (officie conteminant) Light grey CLAY, Light grey CLAY, Some SLT, trace & SANG 15-8A 13" 100% 7 Csat., plastic) istiff CL When no odor. 15-8B 13" 100% 8 Explorations and 2/4/87 AM Soils Similar to 5-16 Explorations begin 5/4/87 PM with 2" layer of Howance roller bit to perettable to 46, 5! Note pettoleum odor			=	4				to 40!	was a Note odor -
(offsite conteminant) Light grey CLAY, Light grey CLAY, Some SILT, trace & SAND 15-8A 13" 100% 7 CSat., plastic) stiff CL Whe no odor. 12.0 = 5-8B 13" 100% 8 Explorations end 2/4/87 AM Soils Similar to 5-6 Explorations begin 2/4/87 PM with 2" layer of Advance roller bit soils similar to 5-84 to 45'. Material easy to ceretrole to 46.5! Note petroleum odor	ļ		-	4					
(offsite conteminant) Light grey CLAY, Light grey CLAY, Some SILT, trace & SAND 15-8A 13" 100% 7 CSat., plastic) stiff CL Whe no odor. 12.0 = 5-8B 13" 100% 8 Explorations end 2/4/87 AM Soils Similar to 5-6 Explorations begin 2/4/87 PM with 2" layer of Advance roller bit soils similar to 5-84 to 45'. Material easy to ceretrole to 46.5! Note petroleum odor	i		-	1					of notineum product -
Light grey CLAY, Light grey CLAY, Some SLT, trace P. SAND Some SLT, trace P. SAND Coat., plastic) istiff CL When a odor. 12.0 -5-8B 13" 100% 8 Explorations end 2/4/87 AM Soils Similar to 5-6 Explorations begin 2/4/87 PM with 2" layer of Howance roller with 2" layer of Howance roller with 50ils similar to 5-84 To 45'. Material easing Note petroleum odor	į		-	3	-				
Sample as above some sitt, trace f. sant (sat., plastic) stiff (LL 41.5) 42.0 3-88 13" 100% 8 Explorations end 2/4/87 AM Soils Similar to 5-16 Explorations begin 2/4/87 PM with 2" layer of Howance roller with 2" layer of to 45'. Material easy to 60 15 similar to 5-84 to 45'. Material easy Note petroleum odor			-]					
S-8A 13" 100% 7 HI.5 S-8B 13" 100% 8 Explorations end 2/4/87 AM Soils Similar to 5-6 Explorations begin 2/4/87 PM With 2" layer of Howance roller bit soils similar to 5-84 to 45! Material easy to cenetrale to 46.5! Note petroleum odor		160.0					<u> </u>		
41.5 = 7 42.0 = 5-28 13" 100% 8 Explorations end 2/4/87 AM Soils Similar to 5-16 Explorations begin 5/4/87 PM with 2" layer of Howance toller with soils similar to 5-84 to 45! Material easy to cenetrate to 46.5! Note petroleum odor	: :		-	_			6	Sample as above	some sict, trace f. SAND
41.5 = 7 42.0 = 5-28 13" 100% 8 Explorations end 2/4/87 AM Soils Similar to 5-16 Explorations begin 5/4/87 PM with 2" layer of Howance toller with soils similar to 5-84 to 45! Material easy to cenetrate to 46.5! Note petroleum odor			-	7 5-81	413	100	47		Ksat. plastic , etill 11-
42.0 -5-88 13" 100% 8 Explorations end 2/4/87 AM Soils Similar to 5-16 Explorations begin 2/4/87 PM with 2" layer of Advance roller with soils similar to 5-84 to 45! Material easy Note petroleum odor	٠.	415		1			7		
Explorations begin 3/4/87 PM with 2" layer of Howare roller with soils similar to 5-84 to 45! Material easy Note petroleum odor			-	\$-8F	礼录	4 100%	2 8		
Howance roller bit soils similar to 5-84 to 45! Material easy Note petroleum odor		72.0	+]	10	+-	+-		
to 45! Material easy Note petroleum odor				=					
to constrate to 46.5! Note pettoleum odor	Willia			\exists		l v			soils similar to 5-84.
to covertexe to rule 1	₹								Mante Detroleum odor.
		44.0	1	ゴ	-			to penetrate to 46.5:	
						-			

	Sile		Zoug	بما	26	Poin	# Boring No. FD87-15 of 8
	N41.0	E₽1H ••2'	COR NO	E/SAI BIZE	17. E	CONT.	6" SAMPLING AND CORING CLASSIFICATION OF MATERIALS
S	44.8 <u>′</u>				REC		Advance 378" OD Holler bit to 44.8 in open hole.
•			ud-2	3"	౹యస్థి	ρļα	Take undisturbed sample Hedgrey-brown CLAY, — (see page 7). Sample some SILT, little call SAND clearifion from disturbed (sad, plastic) CL —
	46.51	-	5-9	3/8	26%	32	material at top of tube. Sample using 13/8" ID by Hed. grey me SAND, some - 2! long split spoon sam- plet to determine charac- ter of soils which cause GIZAUEL (sat., slightly- UD-2 tube refusal;
· · · · · · · · · · · · · · · · · · ·	48.5 49.0	_				14	Explorations End 214/87 PM plastic) dense SM-SC-
	51.0		S-10	318	25%	17 17 17	Material difficult to penetrote to end of Nong. Sample using split spoon. Coat., nonplastic) dense
	52.0						Advance roller bit to 52! SP Note ador of petro: Note caving at 50! Explorations end a/5/87 Teum product contaminant.
	\$4.0	-	5-11	2)00	40%	45 45 45 35	Explorations begin 2/8/87 Med brown-grey 30ils - Clean hole using toller bit, ormilar to 5-10. to 53'. Note caping to 51' which required extensive SP - TILL cleaning. Somple using split spoon, odor (contaminant).
		-					Bothug terminated, as directed by the corps, at 54.0% alb/87
		_					
			}				

FIELD LOG OF UNDISTURHED SAMPLING IN DRILL HOLES

BIT	* Poughan	n's Point	Revere MA	HOLE NO.	FD87-15	_ DA FR_	2/3/87
•							T. T. T. T. T. T. T. T. T. T. T. T. T. T

the state of the s			 	والمحاربة والمحاربة		the second of th
SAMPLE NO.	100 - 1	1	INSPECTOR	Ballac	DRILLER	Cambridge
man 22 1100	<u> </u>		 	Degrade		Campings

A	Total Length of Casing	15	3
В	Casing Length above Ground	Ø,	8
C	Depth of Bottom of Casing (Below Ground) (A-B)	14.	6
D	Length of Sampler and Drill Rods	22	9
E	Drill Rods Length above Ground	8	7
F	Depth of Bottom of Clean-Out Auger (below ground)(D-F)	14.	D
G	Distance of Bottom of Auger above or below Casing (F-C)	-0	, 3
			Piston Rods, (2)
Ħ	Total Length, Sampler and Roda	22.9	
1	Length of Rods above Ground	8.7	
J	Depth of Bottom of Sampler (below ground) (H-I) (1) & (2), (Depth of Top of Sample)	14.2	X
K	Penetration of Sampler, (K-F) (1)	1.3	
L	Penetration or Swell of Piston (K-F)(2)	NA	
	Data after Jacking		
M	Length of Sampler and Piston Rods above Ground	7.4	NA
N	Length of Drive (I-M)(1)		. 3
0	Piston Displacement (I-M) (2)	نع	IA
P	Length of Sample Recovered	0,	0
Q	Length of Sample Lost	1.5	<u> </u>
R	Amount of Sample Recovered, %, N x 100	02	2
8	Type and Size of Sampler 3"DD tube, total lengt	h 2.91	
T	Method and Time of Penetration steady downplessure	the state of the s	19:30 AM
U	Type of Materials Sampled claver 511+ - 5ee S	-4 pag	e 3
ler	er Notes and Remarks: Note that top of boring ingth of sampler 2.9!	is 6.0' alc	ove ground urface,
501	mplet was refused after 1.3' penetrali lowed to sit 10 minutes, given one full	on. San	upler
in	recovery - bottom of sompler warped badly b	1 Lestin	00
spi	it spoon sample taken at same elevation	on lsee	5-4)

FIELD LOG OF UNDISTURBED SAMPLING IN DRILL HOLES

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	Roughanist		 			_
- (C) and the second of	1)	_ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	 	0~	~ //17	0 =
~ 10 T NY	- W 2012 W 2014 A F 1	のいいた、 しんしょうき		X / - \ -	- 31/Ul	X / ·
DILL						
			 and the second second			4 * 4 * * * * * * * * * * * * * * * * *

*	•						
BA	MPLE	NO.	uD-a	INSPECTOR	Reddoe	DRILLER	Cambridge
		·				-	

		<u>م وه و ح</u>
A	Total Length of Casing	20.3
B	Casing Length above Ground	1.3
C	Depth of Bottom of Casing (Below Ground) (A-B)	19.0
D	Length of Sampler and Drill Rods	42.9
E	Drill Rods Length above Ground	3.1
F	Depth of Bottom of Clean-Out Auger (below ground)(D-F)	
G	Distance of Bottom of Auger above or below Casing(F-C)	20.8
		Drill Piston Rods, (1) Rods, (2)
Ħ	Total Length, Sampler and Roda	42.9
I	Length of Rods above Ground	3.1
J	Depth of Bottom of Sampler (below ground) (H-I) (1) & (2), (Depth of Top of Sample)	39.8
K	Penetration of Sampler, (K-F) (1)	1.7
L	Penetration or Swell of Piston (K-F)(2)	NIA
	Data after Jacking	
R	Length of Sampler and Piston Rods above Ground	1.4 N/A
N	Length of Drive (I-M)(1)	1.7
0	Piston Displacement (I-M) (2)	N/A
P	Length of Sample Recovered	1.7
Q	Length of Sample Lost	0.0
R	Amount of Sample Recovered, %, $\frac{P}{N} \times 100$	100%
8	Type and Size of Sampler 3" OD tube, tube length	2.5', total 2.9'
T	Method and Time of Penetration steady down pressure	2 using Hig/9:20 PM
·U	Type of Materials Sampled Silty clay - see d	
Oth	Notes and Demontrs	d Pa

Note that top of boring is 5.0' above ground surface sampler was refused after 1.7' penetration. Sampler allowed to sit 10 minutes, given one full twist.

Recovered sample came to base of sampler. Base was capped, taped and sealed in becswar. Top of sample capped in tube with beeswar. Remainder of tube filled with beach sand. Tube was capped, taped and sealed with beeswar.

Site: _ Boring	0	FD87-15	1	SUBSURFACE WATER OBSERVATIONS					
DATE	TIME	DEPTH-BOT. OF CASING	OEPTH-BOT OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS			
əl 3/87	9:00 AM	15.0	17.0'	5.0'	2.7'	water at surface			
						of ground (5'of			
		· .				riprap removed)			
Υ •	8130PM		42.0'	8.0'	-0.3	at start of doilling			
	9:00AM	24.01	48.5'	8.2′	-0.5	at start of drilling			
2/8/87	13:00 N	04.01	64.0'	8.0'	-0.3	at start of drilling			
<u></u>									
· 									
	ļ				_				
		<u> </u>			 				
	ļ								
Note:	Depths	are in feet	below original	l ground	, ,				
			BORING	LOCATION SK	ETCH				
		1			A				
				· 40	H+1	antic Ocean			
		\downarrow		4241		•			
		4	D87-12						
-		F	001-12			7			

Topof Seawall

Requested Boring Location

Elev. 7.70'

Not to Scale

Reach E

Site Roughan's Point, Revere HA	0. <u>D.O. # 0018</u> Page 1 of <u>4</u> Pages
Hole No. FD87-16 Diam. (Casing) 31/4" ID Huger	3 3oring Started 1/21/87
Co-ordinates: X see X sketch	Boring Completed 1/21/87
Orillad by Cambridge & Burnham	Report Submitted
Purpose of Exploration Determine foundation revelopments, sluice gate and	
Elevation Top of Note3.30N.S.L.	Casing Left in PlaceFeet
Total Overburden Drilled 15.0 Feet	:
Elevation Top of RockN.S.L.	
Elevation Bottom of NoisN.S.L.	
Total Rock DrilledFeet	
Total Depth of Hole 15.0 Feet	•
Core Recovered	
Core Recovered OFt.; Dimin.	
Soil Samples 13/8 In. Dim. 5 No.	
Soll Samplesin. DiamNo.	Water Table Dooth Surface
Depth He thod of Brilling From To and Type of Bit Used	HOUX
0.0 13.0 3"4" ID Hollow Stem Auger with	Bround Mater Mack of Page 4
13/6"ID Split Spon Sampling as	Boring Location Sketch Section Sketch
5' intervals	Overbunden Record
13.015.013/8" ID Split Spoon Sampler	Rock OrifflingPage
	h
Preserved by THB-ddop Field Data	Lab. On to
Substitute to Atlantic Testing Labs	
Substitute by PATIGNATIC IPSTING COLOS	

	•	·	U.S. B OF 1 NGLAN	ENGIN	EER			•				•	<u>Dian</u>			7.	Hollow	•
	FIE	LD LC	G OF	TE	ST (BORI	NG	1					Leh				Auge]
	Total Eleva Total Total Core	Overbution To Rock it tion Be Depth Recover	p of R Drilled ottom of Bores	ock	ring.	0 -18	3, 3	MFoMFo	S.L. S.L. S.L.	Ham Casi Set Obs Drift Mfg	mer Dring Left Hearface Well _ led By Des. Dr	op 30 1 0' Water I No Cam III Ch	Boring Boring Boring Boring He Hada	g Comp	leted_ Pat	1/21	/87 4	
	•	-						5 No			•		Bedd	oe_		-		1.
						· .	lam	No	o. ———	Cla	ssí ficat	ion By: _						┥ ゙
		EPTH *• <i>2!</i>	NO.	E/SAM SIZE		PER EX		OPE	RAT	IONS	ORING		CLASSI					
			5-1	1 M M	10%	30 20 17 5	18 p	00M	10-11 50	19 51 LMG	pilit ler.	Poor	Hed. b some s Cwood	الحر و	onl	0120	ANIC	
	g.o'			-	•		31. Au 4u 1.5	/4"11 uget ugetiv	D +	tollo o s dif 1 fo	w st. Co! Picul	em H to main-	plasti 6P-6	(500 () m ()	ed.	ted, n dans e nu	ion-	ningrup
	<u>5,0'</u>					5		amp			abo	ve :	surfi coard samp typica Med. c	ie of le re	ewel tem surf	D'-re neid icial	exed soils	
ł	7.01		5-2	MB	ع و ا	3 2 4		19€ F	_ 4-	- /(D	.01		and r	C satu	rate	d, no	mplost	上
													of Do	erk r	ed-k	1 0201	1 SIL	
	10.0°	ERAL	BEM	VBKG					· · · · · · · · · · · · · · · · · · ·				nonp) med	ê e	PEAT	
	E10	محدة لعدم	2 06	× 10	me	yed L ne	in.	the f	Çi€1 S. (F	d 60 =087	y AT	ل	sulp				_ 	
	1						ned :	in acc	cord	ance	with	ASTM		-				;
ેખ, 5 8	-	586 e	veehr	. 45		· · ·		Bo	oring	No. J	FD87-	-16	<u>1</u>			•		.لېــ

5118		sugh	ans	P	ont		Boring 1	FD &	87 -	16		Poge ol	. 40
	[РТН 1•21			MPLE FANTA MARCE	7. PU	64 SAMPLI OPE	NG AND C			CLASSIFICATIO	N OF	MATEH	IALS
,		5-3		rec 5%	10 10 14	sample sample	and st	g 13/8'	SON	Dark red-k trace & 621	•		7
12.0'					13	81/4" H	ollow S	tem A	احصمارا	saub (sat., u			7
13,01	=				~	+0 13:0	1	•	•	very stiff - who was			
14.01	-	5-4A	<u> </u>	├ ─ं	4	Sample		vove.		or as a	موص	<u>و</u>	
15.01	-	5-4B	13"	100%	6					Light steen SILT, som			□.
	-					Boring Te	rminate	d at 1	2.01	e sand (oruko	uled,	modi
	-									plastic) sti	₽€	MH	
												,	
		,					•		-				Luit
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2 25 2													-

Page 4 of 4

oring	No: F	gham's Pol 1087-16	<u> </u>	SUBSURFA	CE WATER (BSERVATIONS
ATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS
21/87	atao	13.0	15.0	surface	-3.3	in augers after
						having termination
٠.	·					
			·			
	1					
	1					
	 			1		
	+					
	-		1	 		
	 				1	
	ach f	\wedge	-D87-12		Atland	ric Ocean
		2 K	•			~^67 <i>!!</i>
				424	,	FD87-16 Eleu, -3.3
		· ·	T			一大 不
			1000E	Seawall.	A	1 60'
				. ~.		7
. * 				* .		Parisal-A
	>		,			Requested
	at .					Location
	,		/	<i>T</i>		
	*			1 1 1	. •	
1					•	
	•					
	1.0					

		PROJECT N	0. D.O. = 0018	
Site Roughan's Pa			Page 1 of <u>4</u> Pages	
Hole No. FD87-17 Di	am. (Casing) 314	" ID Auger	Boring Started 1/22	/87
Co-ordinates: * se	ee K skete	<u>.</u> L	Boring Completed 1/22	/87
Orilled by Cambri	dar & Burnhas	<u>~</u>	Report Submitted	
Purpose of Explorati	on <u>determine</u> 1	Sundation con	aditions for propose	d recetments,
sluice go	ate and ear	th borms		
Elevation Top of Hole_		X.S.L.	Casing Left In Place	Feet
Total Overburden Drille				
Elevation Top of Rock_ Elevation Bottom of No			•	
Total Rock Orilled				
Total Depth of Hole				•
Core Recovered				•
Core Recovered				
Soil Samples 13				·
Soil Sameles			Water Table Death dry	
Depth From To	Method of Brill and Type of Bit I		1396	
0.0 18.0 31/4"ID H	lollow Stem Auge	r with 13/8"1		and of him 4
, , , , , , , , , , , , , , , , , , ,	on Sampling o		Soring Location Sketch	<u>ked st</u> tip <u>4</u>
18.0 80.013/8" 5,	olit Spoon So	mpler	Book Bellling	
				7 m
				Paga
				Page
Prepared	y MBeddoe			Lab. Data
·			Janos IJA	LED VALE
Su tan i t ted	* AHIOMIC I	ezund ranov	otones, Hd,	

Site Roughan's Paint Revene MA Page XOT 4 Pages U.S. ARMY CORPS OF ENGINEERS Boring No. FAST-IT Desig. R Diam. (Casing) 3/4"ID Stem NEW ENGLAND DIVISION Co-ordinates: N see sketch FIELD LOG OF TEST BORING Hammer Wt. 140 Boring Started 1/22/87 ____ M.S. L. Hammer Drop 30" Total Overburden Orllled 20.0 Feet. Boring Completed 1/22/87 Elevation Top of Rock ___ M.S.L. Casing Left Total Rock Drilled_ Feet Subserface Water Date Elevation Bottom of Boring -18.0 MS.L. + Obs. Well No Drilled By Cambridge & Burnham 20.0 Feet Total Depth of Boring___ Core Recovered O % No. Boxes O Mfg. Des. Drill CHENS Core Recovered O Ft : Diam. ___in. Inspected By: Deddae 13/6 In. Diam. 10 No. Classification By: Boddoe Soil Samples Soil Samples _ __ In. Diam. ___ No. Classification By: _ CORE/SAMPLE BLOWS DEPTH 6" SAMPLING AND CORING CLASSIFICATION OF MATERIALS SIZE PAGE RESTY 1" 2" **OPERATIONS** 0' Sample using 13/8" 11) Medium grey-brown cmit by a' long split spoon SAND, little of GRAVEL, trace 11 13" samplet. 402 5-1 17 SILT (wet, nonplastic) mod, 14 20' medium dense 5W 814" ID Hollow Stem Auger to 6:01' pole a few boulders from 8.0-5.0! 5.01 sample as above SW as above -5-2A 13" 100% saturated, loose ا مط 5-2B 13" 100% 7.01 ORGANICE Crooks, wood Auger to 10; Augering easy for remain- wips), trace f. SAND, der of koming. (wednouplastic) medium OL PEAT Note natural sulphur odor.

GENERAL REMARKS:

Elevations as surveyed in the field by ATL using benchmark mar Fb-s. (FD87-20)

All soil sampling performed in accordance with ASTM D1586 except as noted.

	Sile			·			Boring No.	Poge 3
	•	Rou	جامم	n's	Poir	*	FD87-	17
	D	CP1H	COH	L/SA1	MILE	01.000 P4.84	6" SAMPLING AND CORING	
	10.0	·· &'	NO	812 E		E XY	OPERATIONS	CLASSIFICATION OF MATERIALL
					REC	2	Sample using 13/8" 10 by 21	Soils Similar to 5-2B
				918	0	2	long split spoon sampler	OL PEAT
			5-3	18	50X			
	12.0					2	•	<u> </u>
	10.10		<u>-</u>			,	314" ID Hollow Hem Auger	
							to 15.01]
٠.								
						`		soils Similar to 5-2B =
								Light grey rust silt,
	150							little CLAY, trace &
	15.0	_	- 119	 		4	sample as above	
	15.7		5-4A			6		wet, slightly plastic = + ipp
	14.3		5-4B	13	852	7		ML -
	,		546			11		Medium grey ma SANDand
	17.0	_		-			tuger to 18.0'	SILT, trace & GRAVEL,
			}					1 ' - 1
	18.0	-	}		<u> </u>	15	sample as above	thace CLAY (sat, very)
•			5-5A			19		Dark brown SILT, some ORCANICS
	19.3		}	13"	100%			(toots, wood chips) trace
	19.7	 	5-6B			23		7 & SAND, Hace &.
	30.0		3-86	 			Boring Terminated et 50.01	GRAVEL, trace CLAY
		_	-				1122187	111
		_						(Note natural o ulpher ador)
		=	1					Hedium blue-grey CLAY
								and SILT, HOLE & SAND -
		_=	1					(conturated, plastic)
		=	1			•		
]					Light yellow/green mothed
			†					SILT and me SAND, little-
		_						
			=					ER GRAVEL, Hace CLAY
		-	┪ .					(wet, very slightly plastic)-
			=					hard ML
			1		1	1		

Page 4 of 4

or mg	No:	han's Point FD87-17		SUBSURFA	CE WATER (DBSERVATIONS
ATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS
122/87	11:15	18.0	20.0	dry		in augers offer
				,		in augers after boring terminated
				·		
			<u> </u>			
	}					
		<u> </u>				
					<u> </u>	· · · · · · · · · · · · · · · · · · ·
		 	 	 		
· . · · · · · · · · · · · · · · · · · ·			 	<u> </u>		
				<u> </u>		
			<u> </u>			
			·			
	ļ	 	 		 	
ote:	Depths	are in feet	below origina	l ground		
Not	+ to	Scale built box	BORING	LOCATION SKE		Ocean
Not	+ to	Scale.	BORING	LOCATION SKE		Ocean
Not	+ to	Scale built box	BORING	LOCATION SKE		Ocean
Note	to .: As.	Scale built box	BORING	LOCATION SKE		Ocean
Note	+ to	Scale built box	BORING	LOCATION SKE		Ocean
Note	to .: As.	Scale built box	BORING	LOCATION SKE		Ocean
Note	to .: As.	Scale built box	BORING	LOCATION SKE		Ocean
Note Note	to .: As. 10	Scale. Scale. built box the reso	BORING	LOCATION SKE	flantic	n' — 1
Note Note	to .: As.	Scale. Scale. built box the reso	BORING ing local rested	LOCATION SKE		
Note Note	to .: As. 10	Scale. Scale. built box the reso	BORING ing local rested	FD87-17 * EIW. 2.00'	Hantic 33	n' — 1

PROJECT NO Site Doughan's Point, Reverse MA Hole No. FD97-18 Diam. (Casing) 3/4"1D Houget Co-ordinates: X see & sketch Drilled by Combridge & Burnham Purpose of Exploration determine foundation tevelments, sluice gate and e	Page 1 of 4 Pages Boring Started 1/28/87 Boring Completed 1/28/87 Report Submitted
Elevation Top of Hole -2.20 M.S.L. Total Overburden Drilled 20.0 Feet	Casing Left in Place Feet
Elevation Top of Rock	Water Table Depth 13.0'
Depth Method of Brilling From To and Type of Bit Used 6.0 18.0 314"ID Hollow Stem Auges with 18/6"ID Split Spoon Sampling at 5! intervals 18.0 20.0 13/8"ID Split Spoon Sampler	Boring Location Sketch Sector Page 4 Overburden Record Page 7 Page 7 Page 7 Page 7
Prepared by TABEDOOP Field Data Substituted by Atlantic Testing Labs, Co	Lab. Data

	U. S. ARMY CORPS OF ENGINEERS NEW ENGLAND DIVISION Boring No. FD87-18 Desig. P Diam. (Cosing) 514 Stem Auger FIELD LOG OF TEST BORING Co-ordinates: X see Sketch X															
	Total Eleva Total Eleva Total Core	Elevation Top of Boring														
	1						_	ification By: . (fication By: _								
		EPTH I*•ဥ′	COR			BLOWS PER FT CORE RECYY	6" SAMPLING AND CO	RING	CLASSIFICATION OF MATERIALS							
	2.01		5-1	130	10%	10 47	allong splitsp sampler. Poor h are to coarse gr cobbles at the	ecopery anels and cuttare	SILT (saturated, remplos							
							31/4" 10 Hollow St to 5.0! Augerin to 1.51; easy for remainder of th	y difficul . The	thic) very dense 600							
	5.0'	-	5-2	138	100/	2 1 2 3	Sample as a	bove	Hed. grey sict and CLAY trace ORDANICS (unidenti- Pialche corbon Litmo)							
	. 1.0						Auger to 10.01		(wet, plastic) soft MH							
(. _.).	Al	IERAL vation sench	mari 1. san	plir	ià b	erform	nthe field by A 5 (FD87-20) led in accordance w	4.1								
^{ባ የ} ች , 5 8		586 e					Boring No. ±									

	Sale	D.	ougha				\$.	Boring No.	7-15	Pope 3
ij.	(0.0°	FPTH 1 2/	C O H				7.	ING AND CORING		CLASSIFICATION OF MATERIALS
	10.5	_	5-3A	13"	REL 10000	1			Lay D	ark brown SILT, some OR-
	12.0		5-3B and 5-8C	380	100%	2 3 5	sampler	split spoon		me sauditrace PERAVEL
								to 15.0'		slightly plastic) soft OL natural
		-							1	-3B - Med grey SILT and -
	15.0		5-4A	13"	100%	2 13	Sample	e as above		FRAGMENTS (sat, plastic) med, MH with two 1"
	17.0		5-48	7911	100%		Auger	to 18.0'		Med. grey mt SAND,
	19.0	-	5- 5 A	136	1007	10		_ as above		Soils Similar to 5-3B MH Dark red-brown SILT
	20.0	-	5-56	i		17		perminated at 20.0	•	and observes (wet, nonpl) medium
							198187			PEAT OL SHEEP Medium grey CLAY, some SILT, thace SHELLS, trace ESAND, trace & BRAVEL, thace ORGANICS LOOKS)
				Address de la constitución de la		•		· · · · · · · · · · · · · · · · · · ·		trace obsarrics (roots) (sat., plastic) stiff CL Soils Similar to 5-4B-OL ight grey SILT, and P
										SAND, Hace CLAY Lin blebs) (moist, nonplastic)
										hand santy Mi

Page 4 of 4

		19 han's Po FD87-18		SUBSURFACE WATER OBSERVATIONS					
DATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH, ~	ELEVATION WATER	REMARKS			
1/28/87	1:15P	18.0'	20.01	13.01	-15.2'	in augers after			
•						bottng terminated			
	· · · ·								
· · ·									
		·							
No:	+ +	o Scale	BORING	LOCATION SKE	тсн				
	Alla	enstic O	cean		2 -				
,		L		50b [:] /		Requested Bothing Location			
	. •	D87-16							
·			72.	each E		FD87-18 Elev-2.20' 59'			
			Top of	Seawall	, 5				
·	•		. ·			J			

Total Overburden Drilled 11.75 feet Elevation Top of Rock	Site Roughan's Point, Revere MA Hole No. FD87-19 Diam. (Casing) 3/4"ID Huger Co-ordinates: X see X sketch Drilled by Cambridge + Burnham Purpose of Exploration determine foundation	Report Submitted
Depth Nethod of Drilling send Type of Bit Used O.O 10.0 314" ID Hollow Stem Auger with 13/6" ID Split Spoon Sampling every 5' 10.0 11.75 13/6" ID Split spoon Sampler Overbunden Record Page Page Page Page Page	Elevation Top of Hole	
From To and Type of Bit Used 0.0 10.0 314" ID Hollow Stem Anger with 1316" ID Split Spoon Sampling every 5' 10.0 11.75 13/8" ID Split spoon Sampler Overburden Record From 4 Overburden Record From 4 From 4 Prop 4	Soil Samples 13/8 In. Dim. 3 No.	Water Table Depth 1.51
Propered by TA Beddoe	From To and Type of Bit Used 0.0 10.0 3/4" ID Hollow Stem Auger with 13/6" ID Split Spoon Sampling EVERY 5"	Bround Nater

			ENGI ID DI	NEEF	ION	Boring No. <u>F097-19</u> Desig	evere MA Poge Fol 4 Poges Diam. (Cosing) 3/4 stem Auger
Eleva	tion To	p of B	oring		- 3.8	O M.S.L. Hammer Wt. 140	Boring Storted 1/28/87
Total	Overbu	irden D	ri i i e	d	17.7	Feet Hammer Drop 30	Boring Completed 1/28/87
		-					
						Feet Subserface Water	Date Page 4
							bridge + Burnham
	-					es O Mfg. Des. Drill C	,
Core	Recover	•d	<u> </u>	Ft :_	D	iomin. Inspected By:	3eddoe
Soll	Sample		13/	<u>e</u>	_In. D	lam, <u>3</u> No. Classification By: .	Beddoe
Soil	Sample				•	lam,No. Classification Byr_	
D	EPTH	COR	E/SAI	MPLE	BLOWS	G" SAMPLING AND CORING	
0.0'	1.21	NO.	SIZE	DEPT H RANGE	CORE	OPERATIONS	CLASSIFICATION OF MATERIALS
× × =	_			REC		Sample using 13/8" 10 by	Light brown of GRAVEL
						a' long split spoon	and come SAND, thace
		5-1	13"	85%	le 0	samples	and one show, trace
					95		SILT (saturated, non-
8'O 1	-		-			314" ID Hollow Stem	plastic dense GW-64
	• =				,	Auget to 5.0'	DIAGRES BENEFIT BO-014
							TILL
	_					poretrate. Coubles	
						and boulders encoun	
	=					tered throughout	
<u>₹,01</u>			┼	-	47	ROBNG.	Light brown me SAND,
	=	1			27	Sample as above	
		5-2	13"	60%	1		little & GRAVEL, trace
	=	1			41		SILT Compist, nonplas
7.01		 	 	╂	37	Auger to 10.01	
	=	1				Thuge I -	tic) dense SD TIL
		1					
	=]					Note petroleum odor
	1 -	1					Coffsite contaminant).
		1					
10.01	5841	1	A P V	 s.	<u> </u>	<u> </u>	4
ما 🗆	ERAL vadio	m a	5 50	ine			
1	1.	اختسا	<i>M</i>	OAL	- ED -	n the Beld by ATL using 5. (FD87-20) oulder field/mussel	
1	colo	M.					-
AIL) AS	moli	ng c	er P	orme	Dinaccoldance with Boring No. <u>F027-19</u>	1

						64 SAMPLING AND CORING	01_4	
	10.0'	i.51	NO	8126		285	DPERATIONS CLASSIFICATION OF	MATERIALS
	ม.75		5-3		80%	17 45 63 50/3"	sample using 130"10 50 as about by 2' long split spoon sampler, Note bouncing refusal. Borng Terminated at 11.75'	e-71Lt
							Borna Terminated at 11.75'	
•								
					-			
								-
-								

201 sud	No:	sham's Pol FD87-19	TA	SUBSURFA	CE WATER O	DBSERVATIONS
DATE	TIME	DEPTH-ROT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS
128/87	5:10		12.0'	1.5	-5.3	in open hole after
<u>.</u>						ougets pulled
			·			
			,			
	<u> </u>	<u> </u>				
	 					
	 					
	1		-			
	 					
	<u> </u>					
	<u> </u>			<u> </u>		
	1					
						
	· -		below original	ground.		
	· -	s are in feet		LOCATION SKE	тсн	
	· -			LOCATION SKE		Ocean
νσ	· -	Scale 844		LOCATION SKE	Hantic	
νσ	t +0	Scale	BORING	LOCATION SKE	Hantic Regu Bon	FD87-19 Elev3.8
νσ	t +0	Scale	BORING 7-17	LOCATION SKE	Hantic Regu Bon	FD87-19 Elev3.8

site Roughan's Point, Devere MA PROJECT NO.	. <u>D. 0. #0018</u> Page 1 of <u>5</u> Pages					
Hole No. E087-20 Diam. (Casing) 31/4" ID Auger	Boring Started 2-6-87					
Co-ordinates: X see X sketch	Boring Completed 8-6-87					
Orilled by Combridge + Burnham	Report Submitted					
Purpose of Exploration <u>defermine</u> foundation revetments, sluice gate and parth						
Elevation Top of Hole	Casing Left in Place O Feet					
Depth Hethod of Brilling From To and Type of Bit Used 0.0 3.5 Hack backback 3.5 28.5 31/4" ID Hollow Stem Auges with 13/8" ID Split Spoon Sampling at 5' Intervals 28.5 29.8 13/8" ID Split Spoon Samples	## Table Depth					
Propered by Beddoe Flord Date Subsited by Atlantic Testing Labs, Lt	GA DAG					

U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DIVISION

Boring No. FD67-20 Desig. 5 Diam. (Casing) 31/4"10 Stem.

FIELD LOG OF TEST	BORIN	0
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Co-ordinates: W see sketch K

Total Eleva Total Eleva Total Core Core Soil	Elevation Top of Boring 10,10 M.S.L. Hammer Wt. 140 Boring Started 2-6-87 Total Overburden Drilled 29.80 Feet Hammer Drop 30" Elevation Top of Rock M.S.L. Casing Left 0' Boring Completed 2-6-87 Total Rock Drilled Seet Isoberface Water Date IPage 5 Elevation Bottom of Boring 19.70 M.S.L. Obs. Well 100 Total Depth of Boring 29.8 Feet Drilled By Cambridge Burnhaim Core Recovered 0% No. Boxes 0 Mfg. Des. Drill CME 45 Core Recovered 0 Ft: Diam. In. Inspected By: Reddoe Soil Samples 19/8 In. Diam. 9 No. Classification By: Beddoe Soil Samples In. Diam. No. Classification By: Beddoe										
0.0'		NO.		DEPT H		64 SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS				
3.5 ¹				ZEL		three and one half feet of boulder hip tep removed by subcon-track backhoe	Boulders (Hip rap) 1 Pt 3 to 10 Pt 3 in size; interstitical moderical - air Midium Krown cme SAND				
5.5°		Ś-1	13/8	20%	13 3 5 4	Sample using 13/8"10 by 21 long split spoon sample t.	Hace P. GRAVEL, Hace SHELL FRAGHEMS, Hace				
8-5						3'/4" ID Hollow Stem Auger to 8.5' Note boulder from 4.0-4.5 removed using a shovel. Augering occato 24.5!	SILT (wet, nonplastic)				
ID,O GEN Elev bend All	hmark	s as Laca	ARKS	5: veye 0-5	5 of in the country of the country o	sample as above. First sample yielded no recovery. Second yelded 5% recovery. He field by ATL using the 27-20) ed in accordance with ASTM	Medium brown ent BAND, and P. BRAUEL, Hare SILT (wet, nonplastic) medium dense <u>EW</u> Note Mydrocarboni contam-				

ŕ							Page 112						
	Sile	Done	han	s Pa	kusc		Boring No	Poge 3 ol 8					
1	: D	CPTH		/SAN		199	"SAMPLING AND CORING	CLASSIFICATION OF MATERIALS					
	10,0'	21	MO	8126	X	X.	DPERATIONS						
	10.5	Ξ	5-2	137	5%	12	sample using 13/8" 10 by 21 long split spoon sampler.	Haterial as described					
		Ξ					31/4" 10 Hollow Stern Auger	Page 2.					
			,				to 13.5'						
					1		Note coarse gravel, cobbe	∃ :					
		-			1		10.0-11.0						
								コ					
•	13.5	-=				7	sample as above	Dark brown ORGANIC MATER-					
						3							
-		=	5-3	13"	100%	4		IAL (roots) and SILT, trace					
)				4		الم الم الم الم الم الم الم الم الم الم					
	15,5		ļ	<u> </u>		4	10.5	& SAND (wet, nonplastic)					
`!			•			•	Note change in moderal	medium stiff OL -					
		=	1				consistency at 16.0:						
]				washout augets with	Note sulphur ador]					
		=	1				nose, cleanout with split spoon samplet.	(natural)					
	,	Ξ	1				Spirit Spoots - 1 a	_=					
	18.5]				, ·	3					
•			}			7	Sample as above.	Hed. grey mo SAND, some]					
]	34	-07	10		CP GRAVEL, little CLAY					
			3-4	13"	50%	33		当					
	20.5	1 -				21		trace SILT (saturated, -					
			1				Auger to 23.5'	olightly plastic) dense					
		-						The state of the s					
			3		1			SP- SC Note odor of					
			7					petroleum product (pallutant),					
			3					Dark brown SILT and me					
	23.5		<u> </u>			_	4	SAND, SOME ORGANICS					
			5-61	4 13	75%	6	Sample as above	(Hoots), trace CLAY, Hace &.					
	고 4.5	5"	耳			16	;	<u> </u>					
	25.0			日温				GRAVEL (sat, very slightly -					
	26.5		<u> </u>	4 1 1 1 1 1 1 1	752	23	-1 .	Hedium brown & SAND					
: .		_	=	.			Huger to 28.5' Note change in material	and of GRAVEL, little clay,					
255			=		1.		consistency at 26.5!	Hace SILT (sat., sl. plastic)					
	27.0	<u> </u>	<u> </u>				Augering difficult.	very dense SPSC -					
3 A /				•	•		FN87-20	See sample description					

584(Test)

Borino No FOR7-20 Page 4

Page 4

ii ar									Albania.			
	Sile	1	bugh	. (D	4		Boring		^ ^ 0 7		Pose
		. VZ	ough		T (-D01	'- 2 0	ol <u>5</u>
	D	EPTH	COH	(/SA I	ur LE							
			MO		RITH	CQ 1/2	64 SAMPL				CLASSIFICATION OF	MATERIALS
, y.,	<i>87.</i> 0	2'	,,,			a eXx	UP	RATIONS	<u> </u>			
					REL		314" ID	Hollow	Stem	Auger	Med. met-brown	& SAND, -
- 1		_				*.	to 28.5		_1 \	ال	HACE SILT (Sal	
	. ,						clean au split st	eger e	mulle	i The		
	28.5			<u> </u>			Sample			n 1.	plastic) dense	
٠.	29.1'	_	5-6A	13%		54		solit s	Noon	10 09	Light brown soi	15 05
	2201		1		100%	115	sample				Hedium brown	& GRAVET
	29.8	=	5-6B	18		115/4	Note Box		Refusa	al		
							Bonng .				and me SAND, +	race SILT
٠.		_	1		-	and the second	2/6/87				(moist, nomples	tic) very
٠.		- =	1	1					•			'=
		-	1 .					•	•		dense <u>GW</u>	TILL -
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Page 5 of 5

		Poughan's 1 FD87-		SUBSURFACE WATER OBSERVATIONS			
DATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH TO WATER	ELEVATION WATER	REMARKS	
16/87	12:00	28.5'	-29.8'	11.81	-1,7	after boring was	
' '				:		after boring was terminated	
·							
	<u> </u>						
······································					<u> </u>		
	<u> </u>						
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	<u> </u>	<u> </u>					
							
No-	+ +0	Scale	BORING	LOCATION SKI	<u> ICH</u>	,	
					AHa	whic Ocean	

Site Roughan's Point, Revere HA	NO. D.O. ≠00/8 Page 1 of 8 Pages
Hole No. FD97-24 Diam. (Casing) 4"	3 oring Started 2/11/87
Co-ordinates: X see & sketch	Soring Completed $\frac{2}{19}/87$
Orilled by Combridge & Burnham	Report Submitted
Purpose of Exploration deferming foundate	tion anditions for proposed
revetments, sluice gate and	earth berms
Elevation Top of Note <u>5.40</u> M.S.L.	Casing Laft in Place Fact
Total Overburden Drilled	
Total Depth of Nois	
3011 Samples Z In. Diam. / No.	Water Table Dooth 2.7
Depth Method of Drilling ** From To and Type of Sit Used	19 0 x
0 50 ROLLER WASH BIT 50 565 DIAMOND BIT CORE BARREL	Sround Nater
tindudes samples taken every 5's less using 13/8"10 split spoon samp or 3"10 undisturbed samples	Field Log of Undisturbed Sampling Age 6+
Present in TABERDOE, PM Fisher Substitute in Atlantic Testing Labor	LIK DELE

NEW ENGLAND DIVISION Boring No. 1-187-21 Desig Diam. (Casing)								
FIELD LOG OF TEST BORING Co-ordinates: N see sketch X								
Elevation Top of Boring 5.40 M.S.L. Hammer Wt. 140# Boring Started 2/11/87								
Total Overburden Drilled 50	. 6							
	Elevation Top of RockM.S.L. Casing Left							
I to the second of the second	Total Rack Drilled Feet Subserface Water Date Page							
Total Depth of Boring 56.5 Feet Drilled By Cambridge and Burnham								
Total Depth of Boring 56.5 Feet Drilled By Cambridge and Burnham. Core Recovered 0 % No. Boxes 0 Mfg. Des. Drill CHE45								
Care Recovered O Ft : Diam In. Inspected By: Beddoe + Fisher								
Soll Samples in. [and the second s							
Soil Samples Z In. (Diam/_ No. Classification By: _	Fisher						
DEPTH CORE/SAMPLE BLOWS	6"SAMPLING AND CORING	AL ADDITION OF MATERIAL OF						
O.D IT SI NO. SIZE RANGE RESLY	OPERATIONS	CLASSIFICATION OF MATERIALS						
- REC 2	Sample using 13/8" 10 by	Med. brown ent SAND						
	2' long split spoon	and of BRAVEL, trace						
5-1 136 202 11	drove a cobble from	E						
a o' = 9	the surface in front	SILT (wet, nonplastic) =						
	of spoon. Remove	medium dense 5W =						
	large cobble and boulder	F						
	from 0.0-1.5 manually. Second attempt yeilded	Late contaminant						
	Sample.	E						
	Spin 4" casing to 5! clean out using 3%8"	 						
5.01	OD HOHEL bit. Note	E						
3	senetiation easy through out bothng.	Med grey CLAY and						
	sample as above	SV T ISW SCANCE						
		SILT, little DREADICS						
7.01 = 2		(grass, wood chips)						
3 1 1	Spin casing to 10.0'	 						
	roller bit.	(saturated, plastic) [
3		soft CL Note adors						
		of petroleum (contaminant						
3		of perioleum (contaminant)						
GENERAL REMARKS	<u>I marking a service na service de la service</u>	and sulphur (natural).						
Flusting as survey	ed in the field by							
ATE using bench	ware real							
Att soil sampling certained in accordance with ASTM DUSAG except as noted.(UD-1 adubat ASTM DISBY)								
Test) Doring No. EAB7-24								

U.S. ARMY.

	Sile	D	امام	ran	l a	Pom	# Boring No Poge 3 of 8
		EPTH	COH	C/SĂI			GUSAMPLING AND CORING
Ų	101	2	ΝQ	8126			OPERATIONS CLASSIFICATION, OF MATERIALS
		=			REC	2	Sample using 13/8"10 by Med grey-brown SILT,
		=	5-3	漫	100)	3	Sampler. little o REANICS (grass, _
				.8	70	3	음식하는 사람들이 가장 살아 있는 것들은 사람들이 살아 있다면 하는 사람들이 되었다면 하는 것이 없었다. 그 그는 사람들이 살아 없는 것이 없는 것이 없는 것이 없었다면 그렇게 되었다.
	12.0'					3	Explorations and 2/11/87 wood chips), trace CLAY,
							Explorations begin 2/12/87 Hace P. SAND. Crost, very
	* *.						Spin 4" casing to 15; slightly plastic) medium
	1					,	noting slower penetration of the ML Note adors
							layers: clean out with 37/8" of of petroleum (contaminant)
		_					
• .	15.0			-	-	3	Sample as above. Medigrey SILT, little emit
				21		2	
			5-4	13"	40%	1 3	SAND, trace CLAY (sol)
	17.01		}			4	very slightly plastic) =
		=					Spin casing to 20' noting Medium stiff ML
			<u>}</u> .				tion.
			1				clean out with roller
			1				bit.
			<u>.</u>				1
	20.0	-]	-	+	2	Sample as above Medigney CLAY, some SILT
_			 				1 3
		1 -	12-01	13	100	4 2	little SHELL FRAGMENTS,
•	21.9	-	3-5P	<u>.</u>		a	Explorations and a/12/87 (wet, plastic) soft CL -
			=				pote inspector change (wood chips) and sict,
•		_	<u>-</u>				to PMFisher.
<u> </u>			7				ROLLER BIT IN OPEN HOLE Trace CLAY (wet, very)
1		-]	, ,			slightly plastic) soft -
	35.0		=				0
	53		1			9	GREY, CLAY, Some SILT,
			<u> </u>	6 13	8 90	1 5	LITTLE SHELL FRAGMENTS
			3			3	(WET, PLASTIC) STIFF, CL
-60 (€)	37.0	7 [1] 第	4000				: ### ### 1946 - 1946 - 1946 ####################################

'S 11¢	Rou	GHA	NS	Pa) NT	Buring No.	Poge 4
DI	PTH		/SÄ N	ام دا	ica in l	V.	
	· · Z'				4 0 ST (657) 12641	SAMPLING AND CORING	CLASSIFICATION OF MATERIALS
	=	,	15.212	REC		2" X 2' DRIVEN SPLIT 5 POON	
280						FOLLOWED BY ROLLER BIT	SILT, LITTLE SHELLS, -
							FRAGMENTS (WET,)
							PLASTIC) STIEF, 64
3 <i>0</i> ,0							
30,0]]	Sample using Split Spoon.	GRAY, SILT, LITTLE
	_	<i>c</i> ¬	3./	550	11	undisturbed sample not taken as drilling consis-	- ASAND, TRACE CLAY
		5-7	18	552	13	HOURING A MIND COUNTS	I live - Sin HTLY TLASTIC
32.0					13	indicated attempt would be unsuccessful. END 2/17/87, START 2/18/87	MEDIUM DENSE, ML
	=	}			*		
	-	}					
1 +0 ±0 ±0]
35,3		ļ	-	<u> </u>		7/1.79' 0 To C	
		1	7"	1009		3" x 2.9" PushEO TUBE SAME pote: drilling consistency	
3/0	=	ו-סטן	3	100%		Indicated an arelecti	
36,9	-					here theretore or wa	5
		-				not taken.	
		1					
	स्वीद्यासः ॥ इति ।]					
40.0	200	}	+	-	8		GREY SILTY CLAY
		5-8	, 3	100			(WET, PLASTIC) STIFF
			1	100	7		CL-ML
42.0)			-	17		
		1					
1						The transfer of the first the said	

, i l e	Rou	GHA	NS	Fo	ומוס	Buring No.	7-21	Poge <u>5</u>
	H193	·	E/SAI BIZE		AC U . L	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF	MATERIALS.
450				Rec				
		UD-2	3"	100)		3"OD PUSHED TUBE SAMPLER	(WET, PLASTIC)	
47.0	-						CL-ML	
480	-				5	2" OD DRIVEN SPLIT SPOON		
		5-9	1%	1009.	776		As ABOUE	
50.0	-					END 2/18/87, START 2/19/87 2" ID core battel. Note: Drill mighad only		
						So ft of steel available core battel was used in an attempt to advance the bottng without losing significant amounts of	STIFFER MATER	ein =
54.3	-			<u> </u>		2" ID core barrel	BROWN-GARY F.	
56.5	_	5-10	a'	1 100	2 -	Note: Material fet to be DENSE Vased on consistency whiledware	SILT, TRACE (DAY-MOIST, A	
ر ۱۵۱۰					•	BORING TERMINATED @ 56.		
		=						

		LIFIN	TOP OF O	101910Wen	DAMELING	IN DIVIDIO			
	\hat{O}		7				1	o∵	7
TATE	ROUGHAN	12 4	BINT	ROT.K	NO FO	87-21 74 172	2-18	5 B	<u> </u>
T 113						VI. 10	gar di na siste ga ili san na s		140 (14)
			经产品的复数						

BAMPLE NO. UD (35.3) INSPECTOR FISHER DRILLER CAMBRIGGE Y

		3.6	x 42 = ==
<u> </u>	Total Length of Casing		The second second
B	Casing Length above Ground		
c	Depth of Bottom of Casing (Below Ground) (A-B)		0.0
D	Length of Sampler and Drill Rods	38	
Е.	Drill Rods Length above Ground	2.	7
F	Depth of Bottom of Clean-Out Auger (below ground)(D-F)	35	
G	Distance of Bottom of Auger above or below Casing(F-C)	15	<i>3</i>
		Drill Rods, (1)	Piston Rods, (2)
н	Total Length, Sampler and Roda	38.0'	NA
ī	Length of Rods above Ground	2.7'	NIA
J	Depth of Bottom of Sampler (below ground) (H-I) (1) & (2), (Depth of Top of Sample)	35.3'	NA
K	Penetration of Sampler, (K-F) (1)	1.6'	NA
L	Penetration or Swell of Piston (K-F)(2)	NIA	N/A
	Data after Jacking		+
M	Length of Sampler and Piston Rods above Ground	1./	N/A
N	Length of Drive (I-M)(1)	1.6'	
0	Piston Displacement (I-M) (2)	<u> </u>	<u>V/A</u>
P	Length of Sample Recovered	2-1	
Q	Length of Sample Lost	GAIN 0.5	CAVE IN
R	Amount of Sample Recovered, %, $\frac{P}{N} \times 100$	100	
8	Type and Size of Sampler 3'00 X 29 Jour Tube	SAMPLE.	2
T	Method and Time of Penetration 1410. Down PRES	SURE S	ERNOTE
ש	Type of Materials Sampled		
No	HARD PUSH THE FIRST 1.0' (500 PSI) ATTED HORD PUSH THE FIRST 1.0' (500 PSI) ATTED IOMIN, TURNED ROO + PULLED	2	

FIELD LOG OF UNDISTURBED SAMPLING IN DRILL HOLES

Comment Cold Cold and the Marie MATE MATE	A E/L 87-71
SITE ROUGHAN'S POINT HOLE HO	Jan Ar and the second s
TARREST TO THE PROPERTY OF THE	- MCLLACA DOTT TO AN ADIO
HAMPLE NO. U J TO J TROPEUTUR	1 377 DRILLIAM THEFT
SAMPLE NO. UD-Z (45.0) INSPECTOR	and the state of t
	S. Andergan
그리는 그는 그는 그는 그는 그는 그는 그는 그들은 그는 그는 그는 그는 그는 그는 그를 보는 사람이 불어주었다. 그 사랑 그는 한국들에 가지 아내를 받는다는데	CICATO
アンオー・コン・ストレン アール・アルム・アンドル・バー・アー・アン 若道 さいてんれんきご	이 이번 보는 방문을 받는 나는 사람들은 사람이 하면 가능하는 것 같아. 그런 그렇게 되었다면 하는 사람들이 되었다는 것 같아.

		24	201
<u>A</u>	Total Length of Casing	<u> </u>	
	Casing Length above Ground		
C	Depth of Bottom of Casing (Below Ground) (A-B)		2.0
D	Length of Sampler and Drill Rods		8.0
E	Drill Rods Length above Ground		0
F	Depth of Bottom of Clean-Out Auger (below ground)(D-F)		
G	Distance of Bottom of Auger above or below Casing (F-C)		5.0
		Drill	Piston Rods, (2)
Ħ	Total Length, Sampler and Roda	48.0	NA
ī	Length of Rods above Ground	3.0'	NA
J	Depth of Bottom of Sampler (below ground) (H-I) (1) & (2), (Depth of Top of Sample)	45.0'	NA
ĸ	Penetration of Sampler, (K-F) (1)	2.0'	NA
L	Penetration or Swell of Piston (K-F)(2)	NA	NIA
	Data after Jacking		
M	Length of Sampler and Piston Rods above Ground	1.0'	1//4
N	Length of Drive (I-M)(1)	20'	-//-
0	Piston Displacement (I-M) (2)	<u> </u>	<u>N/4</u>
P	Length of Sample Recovered		7
Q	Length of Sample Lost	GAIN 0.7	CAUE IN
R	Amount of Sample Recovered, %, N x 100	100.	70
8	Type and Size of Sampler 3"00 x 2.9 John 7		
T	Method and Time of Penetration Hyp Down PAES	ssure(s	CE NOTE
U	Type of Materials Sampled Grey Silty Clay Ct-	ML	
Oth	Her Notes and Remarks: ** Push Akssuns 450ps, @ 211049s, WAITES		TURNED

ROO + PULLED

Joring.		han's Do		SUBSURFACE WATER OBSERVATIONS				
ATE	TIME	DEPTH-BOT. OF CASING	OEPTH-BOT	DEPTH.	ELEVATION	REMARKS		
liale	3:10P	10.0	12.0'	0.01	5.4'	Atstort of		
						dilling operations.		
17/87	0730	20.0	220	3.0	2.4			
114/87	0750	20.0	320	2.5'	2.9'			
10/27	0920	20.0	50,0	2.7'	2.7'			
, 	-	-						
·					4			
• •								
	 							
					`			
	ļ				1			
Do	it te	Scale	BORTING	LOCATION SKE	LIGH			
			Atlanti	c Ocea	w 2-			
						<i>T</i>		
						Requested		
				,		Requested Bothing Location		
		-		502		Bonna		
				502 505		Boring Location		
F	D87-	16				Boring Location		
F	D87-	16 +		505		Boring Location		
F	D87-	16 +	Rea			Boring Location		

CORPS OF ENGINEERS, U. S. ARMY. NEW ENGLAND DIVISION FOUNDATION AND MATERIALS BRANCH FIELD LOG OF TEST BORING.

	Propored by P.M. Fisher Field Sala Substitute by Atlantic Testing Labor.	44.	
	every 5'	Programme Progra	P
	Fincludes 13/8" split spoon sampling	Rock Beilling Pag	,
0 6	RID RAM REMOVED BY BACKHOE 34"ID AUGER + ROLLER BIT*	ground Water	
Depth From To	Method of Drilling and Type of Bit Used	HINCK	
Soil Samples	13/8 In. 01 m. 4 No.	Water Table Depth	
Core Recover			
Total Rock D	otton of Note		
Elevation To	op of Rock		
flavation To	op of Note <u>5.80</u> N.S.L.	Casing Laft in Place	F≫t
	nts, sluice gate and earth be		
	Cambridge & Burnham. Exploration determine foundaition	Report Submitted	
	es: X see & sketch	Soring Completed $\frac{2}{16/97}$	
Hole No. FD	187-2201 m. (Casing) 3/4"10 Augon	3 or lng 3 terted 2/6/87	
site Roug	han's Point, Devere MA	D.o. # 0018 Page 1 of 4 Pages	· · ·

CORPS OF ENGINEERS NEW ENGLAND DIVISION		Diam. (Casing) 31/4 Stem					
FIELD LOG OF TEST BOR	RING Co-ordinates: W see ske	tch &					
Elevation Top of Boring 5.80 M.S.L. Hammer Wt. 140 Boring Started 2/6/87 Total Overburden Drilled 225 Feet Hammer Drop 30" Elevation Top of Rock: M.S.L. Casing Left 0' Boring Completed 2/16/87 Total Rock Drilled 0 Feet Subserface Water Date Page Elevation Bottom of Boring 7/6-7 M.S.L. Obs. Well NO Total Depth of Boring 22.5 Feet Drilled By Cambridge Burnham Core Recovered 90 No. Boxes Mfg. Des. Drill CHE 45 Core Recovered Ft: Diam. In. Inspected By: P.H. Fishor Soil Samples In. Diam. No. Classification By: Soil Samples In. Diam. No. Classification By:							
DEPTH CORE/SAMPLE BLOW PER S	#10 3WMLFING WUD COULUA	CLASSIFICATION OF MATERIALS					
2-11-11-11-11-11-11-11-11-11-11-11-11-11	Six feet of boulders removed by subcon- tracted track back- hoe Explorations and 2/6/87	Boulders (riprop) 1-10 et3 in size; interstial materials air.					
8.0 = 1/8 15% 9 11	3/4" ID Howar STEM Aves	GREY GRAVELLY CMF SAND, TRACE SILT (MOIST, NOW RASTICE MEDIUM DENSIS, 5W					
using benchmark w	med in the Beld by ATC at FB-S (FB87-20) orred in iccordince with ASTM						

	Sile K	oven	ANS	Pr.			Boring No.	-22 01 <u>4</u>
	0	1 · 2	EOH NO:	E /SA1	APLE BAPE	PF	SAMPLING AND CORING OPERATIONS	CLASSIFICATION OF MATERIALS
	//.0				REC			
						26	13/8"XZ' SPLIT SPOON, OPEN HOLE USING 3"	F. SAND, SOME GRAVEL
			5-2	1%	90%		ROLLER BIT	(MOIST, SLIGHTLY RASTRE) DENSE, SP-SM
	.13:0							
	14.5							
								6" COBBLE @ 15.3'
	16					27	As Above	GREY, CLAYEY SANO,
			5-3	13%	45%	סכן		SILT (MOIST, PLASTIC)
)	18				-	80		DENSE, SC
	•							
	21	-	5-4	3,		45	As ABOVE	As Asove
	22,9)-T	1 /8	157	60	BORING TERMINATE @ 22:	
· ·. ·					·.	•	BORING TERMINATE GLE	
义								

Page 4 of 4

DATE	TIME	DEPTH-BOT. OF CASING	DEPTH-BOT. OF BORING	DEPTH: TO WATER	ELEVATION WATER	REMARKS
2/16/87	8:408		22.5'	0.01	5.80'	Note: Drilling mother
						used water to adv
		•				the 27/8" OD roller b
						water was consister
						at the surface dur
•						drilling Boringious
						vanced through chanse
						relatively impermeable
					·	moterial, Roturning
						forced us offsite be
						we could measure any
					<u> </u>	appreciable dispo
						the head in the box
		to Scale	below origina	LOCATION SK		
				 	ETCH	c Ocean
				 	ETCH	c Ocean
				 	ETCH	c Ocean
A	Jo+	to Scale		 	ETCH	c Ocean
A		to Scale	BORING	LOCATION SK	ETCH Atlanti	c Ocean
A	Jo+	to Scale		LOCATION SK	ETCH	c Ocean
A	Jo+	to Scale	BORING	LOCATION SK	ETCH Atlanti	c Ocean
A	Jo+	to Scale	BORING	LOCATION SK	ETCH Atlanti	C Ocean
A	Jo+	to Scale	BORING	LOCATION SK	ETCH Atlanti	Fb87-22
A	Jo+	to Scale	BORING	LOCATION SK	ETCH Atlanti	FB87-22 Elev. 5.
A	Jo+	to Scale	BORING	LOCATION SK	ETCH Atlanti	
A	Jo+	to Scale	BORING	LOCATION SK	ETCH Atlanti	FD87-22 Elev. 5.
A	Jo+	to Scale	BORING	LOCATION SK	ETCH Atlanti	FD87-23 Elev. 5.

SECTION 9

OTHER RECORDS TAKEN

a. Survey Notes

POULHAN'S POINT
CRAR 40 1987
TAN 6, 1981

M. Montgomery
T. BEDDOE

							, , , , , , , , , , , , , , , , , , ,					
6	BS	17	15	Eley.	•	.* *	(a)	BS	•	F5	EVEN	1
BM C HISH &	,	18.87		17.31		7	TPT-5	7.04	15.80		8.86	į
TIPTEL	6,	70	11.34	7.53			77PT-6	·		9.96	5.94	i L
			, 0,		\sim							ı
BSTTPT-1	1.11	8.64		7.53		:	TIPIC	0.685	6.64		5.94	
FO=R	•		6.62	2,02			FO-K			5.78	0.84	
FD-X	T		12.40	- 3,76	\sim		FD- L			2.69	3,85	
FD- X			2.83	5.81		/	FO-I			8.16	-1,52	
77PT-2			5.96	2,68			FD-J			5.10	1,54	
					\sim	5	TTPT-7			4.32	2.32	
TATE	9.805	12,49		2.68								•
FD-XS			2.37	10.12		7	アアア・フ	3.5%	5.88	×	2,32	
TTPT-3			8.50	3,97			FD-G			7.47	-1,59	
. ,							FD-H			5.07	0.81	
7777-3	6.61	10.58		3.97		,	FD- F			4.57	1.31	
FD-P			12.74	-2.16		/	FOE			5.90	-0.02	
10-Q			5.18	5.40		7	1781-8			0.90	4.98	
TOPP 4			2.85	7.73					÷		,	٠
					$\overline{}$	` 7	7778	10.925	15,91		4.98	
1777-4	1.93	9.66		7.73			ED-C			8.18	7,73	
FDN			12.97	-3.31			=0- D			4.22	11,69	
FOM			8.68	0,98	****	7	Temp BM 7	W411		0.76	15.15	•
TTPT-5	-		0.80	8,86								
	21,015						·sm	3.30	18.45		15.15	
		,			_		60-B		:	6.50	11.85	
						P	-O- A			8.57	9,88	
									:			
.												
K. 1	1	1	1		•		•	,	· · · · ·	. ,		

3 7.8.m TO BS 7.8.m. 0.26 15.41 TTPT 9	BEG. BM FS EVEN 15.15 6.635 8.78	TEMP B. MONWAN 3.30	18.45 RS EIEV 18.45 15.45 7.505 10.90
TTPT-9 6.53 15.31	5.20 10.11	FD-V 7.235	18.13 10.90 8.36 9.77
TTPT-10 4.385 14.50	10.11 5.0E 7.48	TTPT-1 8.12 TTPT-2	19.00 10.90
BM on wan chied by.	0.55 17.27 17.25	TIPT-2 9.68	0.32 22.40
-3.300 -3.300	(2.8/15	TTPT-3 3.325	10.53 19.85
		7777-5 2.60 TTPT-5 0.53	13.50 12.92
		10-W	8.12 4.25

BOWING EXENTIONS ROUGHAN'S POINT

ELEV. by M. Montgomery + T. BEDDOE 31D 6, 1957

$$FD-A = 9.90$$

$$T = -3.86$$

- THESE EXENTIONS ARE MINUS ELEVATIONS

TRILETSK B.

PAt. S.

b. Letter to Ms. Dorothy Scholwin

ATLANTIC TESTING LABORATORIES, LIMITED

al

Sustaining Member-N.Y.S. Society of Professional Engineers

Box 29 Canton, N.Y. 13617 (315) 386-4578

> Box 356 Cicero, N.Y. 13089 (315) 699-5281

January 9, 1987

Mrs. Dorothy Scholwin 156 Broad Sound Revere, MA 02151

Re: Roughans Point Coastal Flood Protection Study

Dear Mrs. Scholwin:

Atlantic Testing Laboratories is under contract with the New England Division of the Army Corps of Engineers, Waltham, MA, to provide geotechnical exploratory work and related services for various projects in the New England and New York areas.

We are currently involved with a project in your area to determine foundation conditions for proposed revetments, sluice gates and earth berm for the Roughans Point Coastal Flood Protection Study.

Our firm's task regarding this project involves retrieving soil samples and evaluating bearing capacity of the underlying soils to insure the structural integrity of the proposed revetments.

Soil samples are taken at predetermined locations (see attached location drawing) to give an overall view of the subsurface conditions along the revetments.

Six of these sampling points require that we cross your beach property to reach these sampling points. None of the sampling points are on your property.

We respectfully request that you allow our sampling crews to cross your beach property. We will notify you each time we cross your property. Our crews would cross at low tide and stay well out on the beach area. Please be assured we will not cause any damage to your property.

Thank you for your consideration in this matter.

Respectfully submitted,

Spencer F. Thew, P.E./L.S.

President